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APPROACHES TO SEMANTICS

I. A. RICHARDS CHRISTINE GIBSON
DAVID KOPEL HAROLD FAWCETT

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FOREWORD

Lou La Brant

The invention of the aeroplane came as a glorious gift. Men could fly like birds; time was changed; it was possible to know the inside of a cloud, to have a new perspective on the earth itself, to cross the seas without fighting the waves, to rise above a storm. For a brief time only, we exulted in these new powers. Shortly, instead of an instrument of pure joy, we found the plane a bearer of death. The familiar earth was no longer a refuge, and to escape the menace from above we dug caves, and retreated into underground shelters. Even outside the war zones the sound of droning engines overhead served merely to remind us that others found them bearers of death and horror. So it has come that man is being destroyed by the very device which has within it potential release and enriched life.

The development of the bombing plane, the flying fortress, is, however, merely an unusually dramatic illustration of the fact that any invention, any new machine, may become a menace rather than an aid unless social invention and understanding accompany the mechanical gains. We have invented tall buildings, bridges, automobiles, streamlined trains, but utilize them at a sacrifice of fresh air, privacy, independence, individualized living. There are, of course, thousands who believe that intelligence could find a way for keeping at least many of the old values while we gain the new freedom which the machines offer, but no thinking person will contend that the invention *per se* is good. Nor do we dare discard our machines and our discoveries and go back to a simpler life; we are forced by our very natures and the society we have developed to use these devices after we have made them. The war today is terrible evidence of the cost human beings pay for accepting inventions as a child accepts a fascinating but dangerous toy.

There are many who accept language as the worlds has the aeroplane and the sub-marine.

Here is a great instrument, they seem to say; let us use it fully, carelessly; let us see what can be done with it.

The English language is a powerful instrument, and a fascinating one. Its 700,000 symbols may be fitted together in infinite combinations, each producing a peculiar effect. Excited over the richness of a written, printed, and spoken language we have hastened to see that all our citizens could read and write, and have encouraged all to speak freely. We have printed hundreds of thousands of books and magazines and newspapers, and distributed them with a prodigal hand. We have given to children eight or twelve or sixteen years of education in which they lived in a world of these symbols—spoken and written language—and have boasted of a literate citizenry, of the number of our periodicals and books, of our free libraries, and our free speech. We have assumed that just to be able to make unrestricted use of the language would in itself prove a blessing. Some matters, however, we have failed to note or to understand.

So devoted to the language itself have we become that we have been more interested in having it used smoothly (i.e.,

according to certain rules of syntax) than in having it used meaningfully. We have forgotten the original purpose of language—to communicate—and have taken pride in the mere display. Thus we have praised the "fluent" speaker, and even urged children to write "about anything" just in order to "have a paper." We have been unaware that using language establishes habits which are a modification of our nervous systems, and determine our way of behaving—*are* our way of behaving. We have not realized that the symbols themselves cannot be controlled by other symbols; that, for example, when we define words such as "mother," "father," "parents" we have still to reckon with emotional reactions which the definitions do not control. Thus the phrase, "my mother and my father," may differ in feeling from "my parents."

We have, too, failed to recognize the complication of the language. Not only has the set of symbols increased in number, and each symbol accumulated a history and a variety of meanings, but social groups have become larger and more closely related to other groups, and this change has in turn affected use of language. In the days of Silas Marner, Silas was the only person in Raveloe who did not understand what the villagers meant by the "church." Silas had lived in Lantern Yard, and his "church" was different in doctrine, congregation, and service—not to mention housing—from the church of Raveloe. He, consequently, found the word confusing, until he had visited the new church and been accepted by its members. Today we know myriads of villages, countless churches. If someone were to ask you, "What does the church believe about this practice?" you would certainly ask, "Which church?" "What congregation in it?" "What part of the congregation?" "What member of that part?" For diversity of experience cannot be equaled by diversity of symbols, because the value of the symbols lies—and this is their contradiction—in their wide and ever-changing range of meanings.

The foregoing may be evident when we consider a simple illustration. We frequently use language, however, as though each word had a fixed referent—or at least a few fixed referents. We do not realize the role of context in interpreting the symbol, the extent of meanings, nor their changing nature. Thus it has been easy for us to be confused or deceived. "Democratic processes," for example, are many and greatly varied. They are varied with the group concerned, the problems involved, the immediacy of the situation. And yet we are familiar with the thousand and one arguments that this or that is "undemocratic," each argument based on one illustration used as a general definition. It is called undemocratic for one man to decide, but undemocratic for elected representatives to fail to decide; undemocratic for a person to resist majority rule, but undemocratic to disregard minority objectors; undemocratic to set one man above another, but undemocratic to fail to choose the competent leader; undemocratic to suppress criticism, undemocratic to oppose democracy. Arguments heated and unfruitful result, with even loss in understanding and in development of profitable ways for solving problems.

Indeed, some have lost sight of the greatest value of language—its power to make us human, to permit one man to look within the mind of another—and have insanely used language to confuse.

We have the avowed policy of Hitler to use language as a form of mental suicide. He has said that if we can tell people often enough what they know to be untrue they will eventually doubt even what they "know," may even come to accept as "true" what they know is not so. Thus he has conceived society as living in a world of symbols, separated from reality, insane indeed.

It is time that we look to this matter of language and what we are doing with it in the education of children and young people, as well as in our adult lives today. Fortunately a great many persons have recently become concerned. The present issue of *Educational Method* came about as a result of requests that we discuss "the problem of semantics," "this emphasis on meaning," "all this about a new teaching of language." Obviously the few pages of this issue are inadequate to do more than hint at the approach to such an undertaking, discussed in many volumes, several of which are reviewed in this issue.

A problem so vast as the intelligent use of language must have interested many persons and have developed varied approaches. There are at present in the United States two important centers for the study of language communication: the commission on English Language Studies, Harvard University, headed by I. A. Richards, formerly of Cambridge, England; and the Institute of General Semantics in Chicago, under the direction of Alfred Korzybski. Many who have not been aware of I. A. Richards' commission or who have not read his books on the philosophy of language *(The Meaning of Meaning; Principles of Literary Criticism, and others)* are familiar with the work he has done with Ogden in developing Basic English. Alfred Korzybski *(Science and Sanity: An Introduction to non-Aristotelian Systems and General Semantics*, 1933; revised, 1941) relates semantics to mathematics and to scientific knowledge in many fields of study.

Without doubt the work of Sigmund Freud has done much to make the general public as well as students of psychology aware of the role of language in human behavior.

Mathematics teachers have recently emphasized the need for teaching their students to examine assumptions underlying mathematical propositions. Their thirteenth yearbook discusses the procedure.

The National Council of Teachers of English has appointed a committee on language communication. Although outstanding scholars of the English language have for perhaps a hundred years recognized that the study of grammar should be a study of practices rather than the mastering of a code of "correctness," much of our teaching has ignored these leaders. Jesperson in his *Language: Its Nature, Origin, and Development* (1922) placed the emphasis on the growth of language in both the individual, and the national or language group. Recently Charles C. Fries in *American English Grammar* (1940) has prepared for the National Council of Teachers of English a monograph representing what he terms a "scientific point of view." A comment from his first chapter is relevant: "A great deal of vigorous controversy ignores all the larger problems of effective communication and centers attention upon the criteria to be applied in judging the acceptability of

particular words and language forms." (P. 1)

A more popular and sometimes superficial recognition of certain problems of language is evident in the establishment of the Institute for Propaganda Analysis, with which many teachers are familiar. Examination of the nature of advertising devices and the means for political and social propaganda has made the public increasingly aware that words have effects beyond conveyance of a literal meaning.

Widespread dissatisfaction with the results of educational effort some years ago led to the introduction of the so-called activity movement, project method, purposeful study. The criticism that our schools were teaching children to give answers they did not understand, to talk glibly about books that had little meaning to the readers, and similar accusations that elementary and high school graduates were unable to perform adequately in the light of their academic proficiency were more or less clearly understood reactions against education through symbols alone. The wide reading programs of our elementary and secondary schools are in part an effort to provide books which contain materials close enough to what the readers have seen and felt to be understandable. Direct experience through the use of art materials, trips, handwork, laboratory work, and the like have had as one end the clarification of the referents of words.

The recent popularity for both teachers and the general public of books on language by Walpole, Lee, Hayakawa, and Zahner are evidence of a growing interest in the relation of thought and mental hygiene to the individual's use of and attitude toward language.

Certainly the study of language and its effect upon thinking is not new. Philosophers, grammarians, logicians, and mathematicians have for centuries discussed some of these relationships. But our knowledge of human psychology, our understanding of mathematics and the nature of matter, and, in consequence, our theories of grammar and logic have all changed. The subject can become technical, difficult, obscure; it offers a challenge to continued and sound study; but there is much within easy reach of the teacher who wants a better understanding. The articles of this number of *Educational Method* merely suggest some of the approaches. David Kopel shows applications of semantics to the teaching of reading; I. A. Richards provides a chapter from a forthcoming book on meanings; Christine M. Gibson gives a translation in Basic English of President Roosevelt's address to the public after Pearl Harbor (the translation may be compared to the original by those who are interested in the success of Basic in focusing attention on the intent of the speaker); Harold Fawcett writes from the standpoint of the secondary school teacher of geometry. The article on grammar refers to the previously mentioned monograph by C. S. Fries. If *Educational Method* can serve to start some teachers on the way to studying the nature and function of the language they use with children, a modest but useful purpose will be achieved.

SEMANTICS AND THE TEACHING OF READING[1]

DAVID KOPEL
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Years ago men believed that the earth was flat, stationary in space, and the center of the sun's daily revolution. So plausible was this explanation of ostensible facts observed daily by everyone that for fourteen centuries it was taken for granted to be unquestionably true. As long as men were content with their naive deductions from common stellar, geographic, and diurnal observations, the world did stand still in an important sense; the spell was cast, it should be noted, by *false* knowledge rather than by ignorance.

Someone, however, questioned these inferences about the nature of the earth and the universe; a skeptic called attention to the hidden and anthropomorphic assumptions present in men's thinking about these matters; a student, provoked by doubt into making careful, controlled, and objective observations, found additional facts about the stellar events that everyone "understood"; the Copernican finally succeeded the Ptolemaic interpretation. An important astronomical error was thus corrected. Of far greater significance, this and similar revisions of other hoary dogmas served to entrench a revolutionary mode of thought or *method* for discovering truth. A direct sequel may be found in the remarkable technological and scientific developments of the nineteenth and twentieth centuries.

THE LAG IN LANGUAGE

In the humanities, however, the scientific method of inquiry began to be applied only during the last several decades (and has been influential thus far in reconstructing these studies to but a moderate degree).[2] In these areas primitive rather than scientific thinking prevails among people generally, as well as among professional "scholars" and most school teachers. Let us consider, for example, our attitude toward language. Here is a phenomenon we simply take for granted. Oh yes, we chafe at language bonds in argumentation, we are embarrassed sometimes at our inability to find readily the words that convey our full intent and meaning, on occasion we wonder which word is best to use—(if we are unusually daring or uninhibited, we may coin a word or adopt simplified spelling). But the adequacy of language for performing its designated task we do not question, nor think of questioning. We do not look at language as a tool, like microscopes, pencils, electric drills, can-openers, houses, automobiles, etc., fashioned by men to perform definite functions. We do not ask of language—as we do usually of a can-opener and occasionally of a house—how well it performs and what its limitations are. We do not expect a can-opener to cut through a steel battleship deck. But we do not ever pause to consider whether present language tools and language habits are adequate for solving our complex social, economic, political and educational problems, all of which we attempt to analyze with words. We assume uncon-

[1]Sections of this article are adapted from a paper presented by the writer at the Second American Congress of General Semantics at the University of Denver, August 1-2, 1941.

[2]*Cf.* Reiser, Oliver L. *The Promise of Scientific Humanism.* New York: Oskar Piest, 1940.

sciously that language is a good tool, that the instructions for using it properly are contained in dictionaries and grammars, and that the rules are to be learned through memorization and parsing the classics.

Not very often do we think of language as having a structure and syntax, which reflects our notions of causality of time, of nature.[3] We do not appreciate that the language we use today is better equipped structurally for describing the ancient world of mythology than the modern world of science, and that it has woven into it the assumptions concerning the universe and human nature which men held beyond question centuries ago. To cite a common example, we still say "the sun rises" and "the sun sets," expressing (although not, as a rule, believing) the literal notions about sun-earth relationships current ages ago when our basic language was being formed. We still say, "the rose is red," because ancient men believed unquestionably (and erroneously) in the evidence of his senses that color is *in* the object. People still talk of mind and body, of intellect and emotion, etc., as separate entities; despite Einstein they continue to separate time from space. Our language, fashioned when these nouns represented *separate*, independent concepts, now helps to perpetuate the false-to-fact dichotomies and fragmentations of reality just mentioned. Our language was shaped by men who thought they lived in a *static* world composed ultimately of minute, discrete, solid, changeless bits of matter called atoms. But modern science pictures the world as a *dynamic process* of continuous, rapid, electronic flux and change underneath the more or less stable and enduring facades to which our sensibilities react.

Semantics Takes Up the Slack

Shall we scrap our language then? Of course not! It is too pervasive and important an institution to be relegated by fiat to the junk-pile. Nor should we want to discard it, for it is rich in linguistic values that remain significant and which we wish to preserve. What needs to be done is to inform ourselves about language: how it works, its pitfalls and hidden assumptions, the precautions necessary for using this powerful tool—to the end that it may serve its proper function of facilitating, rather than hindering, the honest communication of man's experience to himself and to others.

It is here that the semanticist provides definite aid. In various formulations, he has enunciated principles—sometimes very simple and obvious, yet usually ignored—that point the way to responsible, accurate, dependable, sane language-behavior.[4] First of all, perhaps, he urges us to be conscious of our linguistic environment as a potent, insidious and ever present force in determining human behavior. To avoid misinterpretations of linguistic symbols and consequently unsatisfactory reactions in our-

[3]Korzybski, Alfred. *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics.* Lancaster, Pennsylvania: The Science Press Printing Co., 1933.

[4]Teachers at all levels of instruction who wish to gain an adequate understanding of semantics will find the following two very readable little books of inestimable value: *Language in Action*, by C. I. Hayakawa, and *Language Habits in Human Affairs* by Irving J. Lee (both reviewed in this issue). The secondary-school teacher, especially of English, who wishes to extend his exploration of semantics will find excellent treatments of the subject and useful illustrative class exercises in *Language in General Education* by Louis Zahner and others for the Commission on Secondary School Curriculum (D. Appleton-Century, 1940). Other valuable references are *Interpretation of Teaching* by I. A. Richards (Harcourt, Brace, 1938) and *Semantics* by Hugh R. Walpole. *(Semantics* and *Language in General Use* are also reviewed in this issue).

selves and others ("faulty organismic evaluations," as some of the semanticists would express it), we must recognize that the "meanings" of words are not in the sumbols but are dependent always upon the (multiple) contexts in which they occur. He has shown also that all words are abstractions, that is, oversimplifications and static representations of complex ongoing processes, many of whose characteristics are inevitably left out of verbal descriptions. Thus, words never say all about a given event. In reading, writing, speaking, and hearing statements we must constantly be mindful therefore that they are *partial*, sometimes merely fractional, representations. And we must discriminate between statements of fact and of inference.

The semanticist tells us further that the word is not the thing itself but rather a conventional label, tag, sign, name, etc., for some object, happening, relationship, fact, opinion, wish, etc. We can avoid the pitfall of identifying the word (and its usual limited connotations) with its actual, unique object or referent: we need but be aware of the dangers of objectification, *i.e.*, of thinking of complex dynamic processes as being as simple literally as their verbal representations. Many of the foregoing admonitions are summed up in the semanticist's golden rule for testing and using verbal symbols: Language should bear the same relationship to facts as a good (dependable) map bears to the territory it represents. (The map is not the territory, it leaves out details and never tells "all" about the territory, it is one of an almost infinite number of charts and types of charts that can be drawn of the same territory, etc. . . . . Similarly with verbal reports.) This precept can help the individual then in evaluating utterances properly and in employing language soundly.

There are, of course, a large number of other important semantic principles in addition to the few which have been stated above (and described rather sketchily because of limitations of space and the probability of their more comprehensive treatment by other contributors to this issue of *Educational Method*). Moreover, it should be noted, the present discussion of language reflects the point of view of the *general semanticist*[5]—adopted because of its far-reaching implications for many areas of living. Some applications to the teaching of reading are set forth in the remainder of this article. Semantic considerations such as we have been examining are employed, and perhaps clarified, in the following appraisal of several common practices in reading instruction.

Initial Reading Instruction as the Semanticist Sees It

Instruction in how to read print usually begins upon the child's entrance to the first grade at the age of six. Here we commonly witness an unfortunate reversal of the natural order in which the learning of the word symbols should take place. From early infancy children associate recurring noises with correlative events that have an immediate significance: satisfying, stimulating, or thwarting their physiological needs. In

[5]The general semanticist may be described as the 20th century specialist who studies the effects of the linguistic environment upon human behavior. Philosophers of all time have been interested in the relation of language to thinking and action, but only in the last quarter century have men like Korzybski, Carnap, Britton, C. W. Morris, I. A. Richards, C. K. Ogden, and others explored this field so thoroughly, systematically, and fruitfully as to make semantics a new and vital discipline. There are several schools of semantics (as there are of philosophy); some are more comprehensive and perhaps more valid and useful than others, although all have made valuable contributions.

this life-setting, words and other language skills are learned quickly, with little effort. Significant experiences characteristically precede the acquisition of their symbolic representations; or more accurately, in a complex meaningful situation some component emerges as the sign or symbol for the total event. But primary-grade teachers commonly are obsessed with the importance of *verbal* mastery as an end in itself. They utter sounds, make marks on cards and blackboards, and then point to objects—or worse, pictures—which the signs are supposed to represent. And the child is expected to follow suit, parroting the sounds he has heard his teacher make after exposing certain little black or white markings on a card or blackboard.

Now this process differs in several important respects from the pre-school life situation in which words have previously been learned. First, a sensed need or a convincing reason for learning new words and the written or printed forms of both new and familiar words is usually absent. (Parenthetically it may be noted that the child in this stage in school has his language development sharply curtailed by a "reading" program which restricts—rations—the number of new words that may be learned; most of his time is spent in memorizing the written signs for simple words he already knows.) Without the catalyst of motivation and its corrolary, intelligent attention, children find it difficult to weld the link between symbol and referent. Today, after hearing the word and seeing the printed symbol a youngster will glibly say "cat." Tomorrow, when confronted by the same printed sign, he may say "dog," unabashed. In desperation the teacher resorts to drill, to the repetition of the exercise, in the vain hope that reflex action will perform the work designed for intelligence. And as a result children do learn (or are trained) to respond to words the way monkeys, dogs, horses, and other circus animals can be trained to respond to signals — automatically, unreflectively, narrowly.

Through this type of conditioning the child learns to identify and confuse words with their referents; he learns to objectify all words, and to invoke single, limited images or notions in response to word stimuli. In his later reading this tendency leads to many misinterpretations. For words have *multiple* meanings and their *appropriate* meaning at any given time and place depends upon their total context or setting. A good reader is aware of this fact; he is therefore alert to cues that will help him elicit from *his* background of experience the most appropriate meaning for a term; he is self-critical, sensitive, and quick to revise the accent, emphasis, or "meaning" which he attributes to any word or words, in the light of their total context.

On the other hand, again, the school setting in which prescribed words are to be learned provides but a meager context, and is low in feeling tone. The natural situation usually abounds with sensory stimuli and provides a variegated context that is conducive to symbol learning. Such situations bristle with interest-compelling forces; outside the child's skin there is animation, color, movement; inside there is warm emotion. A child playing with a fuzzy little bundle of fur—kitten, puppy, rabbit, etc.—readily learns to call it by its appropriate name in the presence or ab-

sence of the object. Not only does he learn the right label, he learns how to *use* it. The label is part of a larger language unit (verbal context) and part of an even larger life activity (or physical context). His satisfactions come from his increased mastery in manipulating and controlling his environment both directly and symbolically.

In many classrooms the word is torn from most of its living context; its relevance to the child's experience and needs is lost; it is thus drained of "meaning" on the one hand and on the other charged with a certain unfortunate type of affective content. Mastery of the word is recognized, unconsciously, by the child as necessary for maintaining his status and security. In difficult situations all kinds of strategems are employed to "get by"; when the task is impossible the child develops feelings of inferiority and attitudes of dislike and disdain or of fear for the linguistic paraphernalia and ritual of the school. Indeed the functional illiteracy of the vast majority of our people, *i.e.*, their reluctance and inability to read comprehendingly and discriminatingly the books, monographs, reports, etc., necessary to understand our crucial economic, political, and social problems, may be traced partly to an infelcitous mode of reading and language instruction which has its inception usually in the first grade.[6]

Reading-Readiness Tests and Practices

Recognizing at last the futility of teaching many children how to read books in the typical first-grade program, teachers have formed the notion that these youngsters are not "ready" as yet for this activity and have differentiated this group sharply from those children who show more aptitude and maturity. So-called "reading-readiness" tests have aided in making this rather arbitrary division. Improperly and unwholesomely segregated groups have resulted from this false-to-fact dichotomization and objectification in thinking by teachers about a *continuous* process. Hailed as a panacea for the cure of the first-grade malady, reading-readiness tests and pre-reading classes have in many instances served merely to perpetuate and refurbish anew the "primary-education fetish."[7]

It is easy to recognize the semantic naivite involved in the foregoing practices. A consideration of the term "reading" may illustrate this point. As used by many teachers, it has served to obscure the process character of the act. Teachers have objectified reading by identifying it with the interpretation of continuous discourse in books, journals, etc. (This skill is rarely developed to any useful extent in children below the age of eight or nine—nor is it needed by these youngsters.) By so doing teachers (and parents) have blinded themselves to the many important but rudimentary reading activities in which many children in "good" homes engage long before they enter school. Such activities include: handling and opening books, turning pages from left to right, looking at pictures and captions, identifying stories, recognizing and saying letters, sounds and words found on the printed page, and interpreting with some ade-

[6]Witty, Paul and Kopel, David, *Reading and the Educative Process.* Boston, Mass.: Ginn and Co., 1939, Ch. I and VI.

[7]Dewey, John, "The Primary-Education Fetish." *Forum,* (XXV, 1898), pp. 315-328.

quacy the meaning of small but sequential groups of these elements.[8,9]

Reading, in this broad but helpful sense, begins early in infancy. Children learn to read as they learn to talk: exercising and giving expression to a biological function in the conventional forms and patterns used by the social groups to which they belong. Children appear to learn most efficiently if competent guidance is provided at the time when their exploration of the mysteries of printed forms leads them to seek new skills for the manipulation and understanding of these forms. The reading activities of the first grade should serve to extend rather than to interrupt the chain of experiences in the child's life at the time he enters school. And he should learn new skills in reading naturally and functionally as they are needed to carry on and to share his individual and group enterprises.

Reading Ability As a Function of Standardized Reading Tests

The definition of reading among educators has undergone a series of decisive evolutionary changes. From the extremely narrow and mechanistic view that reading is a passive and receptive process involving little more than the mere recognition of symbols on a printed page, we have progressed to the more adequate and dynamic interpretation of reading as an active, discriminative, purposeful, and creative activity through which we reorganize meanings, gain understandings, and acquire knowledges. We now view reading as a constant association between the reader's experiences and word symbols and we perceive that the benefits accruing from this interrelationship are in proportion to the richness and accessibility of the accumulated experiential background of the reader. Good reading ability is seen to encompass the power to think critically; skill in discovering relationships and establishing appropriate associations; the habit of weighing evidence and formulating relevant judgments; dexterity in locating reading materials pertinent to individual needs; and facility in adapting reading techniques to different purposes.

Verbal allegiance to the foregoing characterization of the reading process can readily be elicited from most teachers today. However, in direct violation of their theoretical position appear many of their practices. For example, as a measure of reading ability they rely almost completely upon standardized reading tests. These instruments represent so great an oversimplification of the reading process as to render them absurdly inadequate for the measurement of reading performance. Clinical observations and experimental evidence support this statement. Thus, a study made by Roma Gans[10] showed that children who received high scores on standardized reading tests were not necessarily good (intelligent) readers. Despite superior ratings on the "comprehension" section of standardized tests many children were found in this investigation to display a disconcerting gullibility and lack of critical discrimina-

[8]Wilson, Frank T. and Sartorius, I. C., "Early Progress in Reading: Not Reading Readiness." *Teachers College Record*, (XL, 1939), pp. 685-694.

[9]Kopel, David, "Reading Readiness: Its Determination and Use," *The Teachers College Journal* (xiii, 1942), pp. 64-70.

[10]Gans, Roma, *A Study of Critical Reading Comprehension in the Intermediate Grades*, New York, N.Y.: Bureau of Publications, Teachers College, Columbia University, 1940.

tion in the *selection* and *use* of reading materials.

Standardized reading tests have been criticized above for several reasons. Although they are widely used, they embody a point of view about reading which was obsolete a generation ago; nevertheless, test results are assumed by many educators to reflect the reading achievement of children and the success of their teachers; deliberately as well as unconsciously, teachers' procedures are influenced by the standards set forth in tests; inevitably children's reading opportunities are restricted to the cultivation of a series of narrow skills (sampled in tests) of limited value years ago but which in the complex war-torn world of 1942 spell functional illiteracy.

The injudicious use of tests then is a potent, although infrequently cited, factor stunting the reading ability and dulling the evaluational skill of our population.

Semantics and Tests

In the construction and use of both standardized reading achievement tests and readiness tests, similar semantic errors and other fallacies are present. Reading ability or "reading-readiness," as the case may be, is objectified or reified. Because so many important aspects of reading are ignored in most tests, they provide inadequate representations (and, semantically speaking, faulty high-order abstractions) of the reading act. However, these crude devices for appraising reading skill are identified by teachers with the *processes* to which they refer, simply because they bear the label "test," and a test is assumed to be a measure of whatever its title suggestively purports to measure. But as we have seen, there is little correspondence between the structure of most tests and the structure of the proficient reading act, or to use the familiar semantic analogy, between the map and its territory; it is not surprising then that a great deal of teachers' instructional "driving" follows a rough bumpy road and often winds up in a blind alley.

Conclusions

In this paper the writer has been critical of a number of prevailing practices and accepted notions that are influential in determining the outcomes of reading instruction. An attempt has been made to disclose usually hidden and unconscious assumptions about the nature, measurement and guidance of reading. Semantic insights have been used in this analysis in so far as they contribute to an understanding of certain barriers now present in most schools which impede the development of adequate reading proficiency and intelligence in our children. It appears that a semantic sophistication on the part of teachers will lead them to reject and to modify many of their present unsatisfactory and unsound procedures. In addition, it should be emphasized that a knowledge of semantics can aid teachers (and parents) positively in promoting the language and evaluational growth of children.

Several reports describing the use of semantic procedures at various levels of reading instruction[11] have already ap-

[11] Cf. articles by Paul Diederich in the 1939, and by Madeline Semmelmeyer, Ellen Walpole, Hugh Walpole, and I. A. Richards in the 1940, Proceedings of the Annual Conference on Reading Held at the University of Chicago, edited by W. S. Gray. Additional reports, by M. Semmelmeyer, O. R. Bontrager, M. Kendig, and others will be found in the forthcoming Proceedings of the Second American Congress on General Semantics to be published by the Institute of General Semantics, 1234 East 56th Street, Chicago. More extended treatments are contained in the five volumes listed in footnote 4.

peared. Space does not permit much further discussion of the place of semantics in the teaching of reading. The writer must rest content to assert that semantic principles should permeate the language and behavior of all adults who guide children's development. Simultaneously with the child's acquisition of his first word he can and should be taught, for example (in language appropriate to the child at this level), that a word is not the thing to which it refers, that words never say all, that verbal symbols are sometimes faulty guides to "reality", etc. Some of the other semantic devices such as attaching dates and index numbers to events—which are helpful in suggesting the dynamic quality of the happenings represented by static symbols—can also be introduced to the child somewhat later but long before he enters high school.[12]

When given this kind of scientific orientation, and a type of individualized instruction based upon the *facts* about child growth, children should progress linguistically at a rate far beyond present expectations. Perhaps the educative process in America may yet become effective in developing a nation rather than a handful of people who think critically, read intelligently, speak intelligibly, write clearly and act sanely. They will be needed when the present holocaust is ended, to build a new and better world.

[12]These devices are described by Korzybski (*op. cit.*), Hayakawa (*op. cit.*) and Lee (*op. cit.*)

PART-WHOLE SHIFTS AND CONTENT CHANGES*

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Why are some words so troublesome, shifting, almost treacherous, other words stable and good? To put it so is most unfair to them. It is not the word or even its history which is at fault, but the business it has to transact and the influences it has to meet. This may become more understandable if I can make clear a certain distinction between two ways in which words change their meanings. It is an unfamiliar rather than a difficult distinction.

I will illustrate it first with two words which cause no trouble; we understand them very well indeed in all the varieties of their behavior. The first is the word *addition.*

It may name

(1) a general process: 'Addition is easier than transformation.'
(2) one event: 'The addition was soon made.'
(3) what is added: 'This wing of the house was a later addition.'

Here, though 'addition' shifts its application by pointing more widely or more narrowly, to the process in general, or to a specific instance, or to a part (here what is added) there is no change as to the meaning. The process it is in different ways talking about remains the same. We are changing our focus from a *whole* to different aspects or *parts* of it. Let us call these differences Part-Whole Shifts.

But suppose we passed from talking about arithmetic or building to talking about the alterations a writer may make to his text? Here something very different is happening. The Part-Whole shifts (I will be mentioning them frequently so will abbreviate the label to P-W) can still take place in parallel fashion. "The absence of all that is a great addition." But there has been a change in the sense, we are talking of different sorts of adding, a heightening of value not a quantitative increase. We will label such differences Content Changes (or CC).

Now consider *Attention*

The P-W shifts are between

(1) General process of attending: 'Attention soon flags under these conditions.'
(2) Some one instance: 'Attention, please.'
(3) Outward appearance of attention: 'His lack of attention was deceiving.'

Notice that most examples we try to give of these differences will probably be themselves ambiguous. We must expect this. The language has produced these P-W shifts largely to handle situations which are inherently ambiguous. But that does not prevent us from detecting them when we need—and that is more often than we know.

Number (3) here names outward signs of interest. A special class of such signs of interest has been singled out, acts done to please or help: 'He showed her sundry attentions.' Special implications come in here which may amount to a CC. Attentions, after all, in Jane Austen's time could involve the gentleman who paid them in no slight conse-

*This article represents the substance of one chapter of a forthcoming work entitled *How to Read A Page* to appear in March from the house of Norton.

quences. But this CC we note is made possible by a special P-W focus in the use of the word—a focus on overt acts rather than on the general process of giving attention to something.

Now let us consider the verb: *attend.* I remarked in the last Chapter that Basic English by making, for example, *give attention* do the work of *attend,* forces us to note many things we might otherwise overlook. It is fair to say that most of this Chapter is a by-product of work on ambiguity which prepared the way for Basic English.

Attend too covers—somewhat less distinctly—(1) the general process, (2) the specific cases and (3) the signs: 'We attend better when fresh.' 'Please attend.' 'Are you attending?' It is less clear that it takes over the special implications of 'attentions' in the lover's sense. We can give it them, of course, but whether we should succeed in communicating them is more doubtful. For the verb does several things which the noun either does not do, or does with a noticeable difference.

(a) To say 'I will attend to that'—'take care of, look after, see to'—is not the same thing (normally) as to say, 'I'll give it my best attention.' The verb form implies that I will *do* what is needed about it. The noun form only promises that I will direct my mind to thinking about it. The context, and especially what we know about "that," may imply suitable action; but there is a perceptible difference between the two statements in the implications suggested. This becomes still clearer with "I will attend to him" and "I will give him my attention."

(b) To be present at; "Why did you attend the lecture if you didn't attend?"

c) To wait for; ('loth to make the saints attend her long,' *see* John Donne, *The First Anniversary,* line 9: unwilling to have them wait for her, wait on her, or *listen* to her long?)

I have chosen examples *(add, attend)* where there is little or no likelihood of interpretations going wrong. But if we turn to more important words, we shall see what an enormous amount of persistent misconception comes from neglect of P-W shifts and the CC's which they engender. Half the theory of education—throughout its long history—has been an ineffectual attempt to make people separate 'knowledge' as the process of knowing, from information—in its degraded sense of items which can be acquired, retained and regurgitated without any serious knowing of them, i.e. understanding of them, taking place at all. The word 'education' itself performs the same P-W shifts as 'knowl*edge*', and so do most of the key words in the educational vocabulary: *Thought, experience, instruction, need, observation, comparison, perception.* . . .

The psychologists long ago found that 'perception' was so troublesome a word as failing to distinguish between the perceiving process and what it perceives, that they coined the technical word 'percept' for this last on the model of concept. But they might have been warned by the adventure of 'concept' itself—one of the trickiest of all words—that new coinage here would be no remedy. 'Percept' continues to be the occasion of the same verbal misconceptions. The remedy is not in new words but in a fuller study and understanding of these P-W shifts as a general feature of certain groups of words—inevitable with them because of the sort of work they

have to do. Many words which end in -tion (and which might be therefore called shun! words, if that would not suggest that we avoid them. We cannot) have the same P-W shift. *Destruction*, for example:

The destruction of the town took 20 minutes.

The destruction from that raid was still visible in 2042.

The reader will find it instructive to run over the following and note which take this P-W shift and which do not: *action, instruction, emotion, information, construction, conception, investigation.* . . . When the movement of attention required in this inquiry has become easy, he might turn to a few words ending in *ment: advertisement, amusement, government* . . . and consider how far their P-W shifts are the same and what Content Changes seem to follow them. There one of the reasons, at least, why discussions are not as profitable as they might be and why reading is a more difficult art than we suppose may have become more apparent.

It will be useful, as a preliminary to attacking some of the greatest key words, to take up three or four words of less importance, less difficult and better understood, and note briefly their more striking variations of meaning—both these Part-Whole Shifts and Content Changes. For the art of making such analyses easily and without strain is very largely—as Aristotle taught us—that of allowing the relevant 'experience' time to grow. These changes follow a small number of fairly constant patterns. After studying a few of them thoroughly the parallel instances leap to the eye—'the universal; the one behind the many which is a single identity within them all' has made its stand.

Comfort may be our first example. When we comfort someone, what are we doing? Is the comfort our words or acts or some outcome of them in his feelings? Compare: "The more she comforted him, the less he was comforted."

When we say 'comforting words,' are comforting words sounds which should, or sounds which are intended to or sounds which in fact *do*, give comfort? They may be any of these things on different occasions, and normally we are not mislead by such P-W shifts—though in my example no doubt she was. Most people follow such charges with the greatest of ease and conversation in which they are missing lacks all savour, all wit and all grace. Those who do not recognize them are boors or bores. None the less it takes something of a straddle of the intelligence to note that the very same shifts occurring with words like *mean* and *say* are a source of a large proportion of human misunderstanding.

Now let us examine the word *find*, an innocent word in itself but useful in preparing the way for an examination of *show*, which is very far from harmless. *Find* has a variety of senses. The main Content Changes are between

1) To come across, fall in with;
2) To discover, or get to after attempts;
3) To become conscious of through thought, to learn by experience.

There is little enough risk of confusion between these, and if there were, no problems of any serious *intellectual* consequences would be likely to arise.

Show is another story. Its meanings are not only more various but far more

deceptious in their interactions. The main meanings are:

1) To look at (obsolete);
2) To put in view, to let be seen;
3) To make see, to point out;
4) To be, or give, signs of;
5) To prove, or make certain by argument.

The first three of these groups of meanings are roughly comparable in complexity to those of *find*, and if that alone was the range of *show* it would be no danger to us. But Groups 4) and 5) use it to describe three situations which are well known to be among the chief occasions for misinterpretation: the sign-situation, the statement situations and the proof situation. Any word used to describe these situations must cause trouble and be rightly suspect—as spies, members of secret police and go-betweens generally must by *their* profession.

Show is in fact a member of a guild of words which is professionally tainted. It belongs—with *mean* and *say* and *interpret* and *express* and *prove*—to a peculiar trade, the handling namely of sign and symbol situations. Clear and honest dealings in these situations are, we know, immensely to the *general* interest. Unluckily, obscure and dishonest dealings are incessantly to the particular interest here. The behaviour of *show* shows this well. If I say "That *shows* you what sort of person he is!", the word exploits, with damaging intention, the easy confusion between:

a) being a *sign* of certain doings. Signs have to be read in settings; mean totally different things in very slightly different settings; suggest different things to different people; have interpretations which are conjecture only unless verified . . . and so on.

b) being a *proof* of certain doings. And proofs as we know are of all sorts; range from demonstrations, and verifications, to mere suasions and *seance* phenomena.

c) being a *manifestation* of certain doings. That is being the very doings themselves, no signs or proofs of them.

It may be greatly to my advantage, on occasion, to confuse these things for you. The word *show* is a perfect instrument for the purpose. But do not let us blame the word. It does nothing except what we do with it. Its trickiness derives from our own lack of competence and candour in certain situations. We want to evaluate a hunch into a proof, or still higher, into the very presence of the fact itself before us. We want to do this so often, also, that language has conformed to our wishes. We are provided with an elaborate apparatus of words, of which *show* is a typical part, which lets us do this very smoothly and secretly. Then the apparatus takes charge; man becomes the servant and victim of his language machine; and even when we sincerely want to be clear and candid, to say no more than we are justified in saying, to deceive no one and least of all ourselves, we will lazily and in all innocence use such words as *show* and suffer thereby the proper penalty of our past evasions.

Very often, of course, *show* will be entirely harmless. But it can be so viciously misleading that we should at least be aware of its tricks, and if the importance of the occasion warrants be ready to replace it by phrases—*it is a*

sign that, makes it clear that, makes it possible that, makes it probable that, makes it certain that, offers a suggestion that, puts before us, presents to us . . ., and so on—which will say what it says more frankly and open up to us the shifts through which its power to confuse us come.

My last example is *involves*. This word ought to be more famous than it is as the foggy mind's best friend. When you are not sure what you are saying you will usually be safe in saying *involves*. On the other hand it can be used with precision though it rarely is.

'A involves B' may (among many other things) say:

1. A is not possible without B.
   (Every act involves some assumption.)
2. A is a part of B.
   (Every act involves a beginning, a middle and an end.)
3. B is among the causes of A.
   (Smoke involves fire.)
4. If we have (or do, or undergo) A, we will probably have to have or be wise to have (or do, or undergo) B.

Compare similar uses of *implies*. The two words are frequently synonyms, but *implies* has technical uses in formal logic, not shared by *involves*, and both have many special senses. Thus, to use *implies*—or *includes* or *entails*—in elucidating *involves* would be poor technique. It is far wiser to take the problem of its precise meaning at a given place in a given passage down to the most indispensable words—*possible*, *part*, *cause*, *necessary*. We have a better chance then to see what the word is saying. And now we may be ready to consider (and may the stars if they can aid us) how some of the greater necessary words behave in our minds.

A FIRESIDE TALK IN BASIC

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Documents of American history are coming alive today, and the great speeches of the past are being read again with a sounder understanding of their significance. In anthologies such as *We Hold These Truths*, edited by S. G. Brown (Harper and Brothers, 1941), great landmarks in the nation's history are being made easily available for reexamination against the background of contemporary events, as well as to provide a background for appraising developments taking place before our eyes—or behind our backs. But there is no keeping up with the landmarks, for the publisher today at all events; indeed, the newspaper is beginning to take its place in the classroom among school texts. And the radio, as well—we may find ourselves any morning of the week living through a declaration of war, or a lightning shift in the balance of international affairs, brought to our ears in an official pronouncement which takes priority over some item of the day's routine and brings people all over the country, even the world, together as one vast audience for an invisible speaker. The next day, an important speech delivered in Washington, London or Berlin becomes available in printed form to every man and woman in the United States who has the price of a newspaper.

But there is nothing so stale as a last week's—or even last night's paper. So that one result of all this immediacy is a spread of the "Time Marches On" tone of voice. It becomes difficult in the press of events to persuade anyone to reread and reconsider the permanently significant in a long line of utterances recorded: to go back from the President's address of February 23, for example, to his statement after Pearl Harbor, and compare the two.

In his fireside talk to the nation and the world at ten o'clock on the evening of Tuesday, December 9, President Roosevelt assumed in an hour of crisis a position of unique responsibility. It is a position which he has been preparing himself to fill and which the men of all forward-looking countries have been waiting for him to claim. How completely it is his by right, this talk has shown. What follows here is more than anything else a pretext for such reconsideration, in the schools, of a pronouncement important enough to be read again from time to time as the events of war develop.

In medieval days few men were "educated" men, at least to the extent that they could lay claim to the rank of scholar. But for men privileged to join that company national boundaries were down. They spoke a common second language, Latin. There were no barriers to the life of the mind.

Today men are both more and less educated than their forefathers. Perhaps even fewer can—or at least do—lead lives of reflection and contemplative reading. But responsibility for keeping the mind alive and alert has spread to all literate people. They have access to what few, 500 years ago, had any

means of knowing, and they have access to it more readily than kings or emperors among their ancestors ever had. Even the language barriers are falling one by one. English, the official language of more than 500,000,000 people, is now being taught so skilfully that any ordinary person free to give an hour or more close attention to instruction in it each day, may acquire a sound working knowledge of a useful vocabulary in under six months. World leaders may soon be addressing world audiences in this vocabulary of 850 widely used English words, a vocabulary selected by C. K. Ogden, and named the System of Basic English. Nor is there justification for supposing that any aggressiveness or cultural imperialism would be prompting such a move. Basic English in its very simplicity and time-saving streamlined approach to the problems of communication is conserving the energy of men of all nations for the enjoyment of the cultural advantages of their own country and their own language. More than that, it is facing openly the criticism of all. Those using it will be on trial before a world jury. By means of it all may hear what all are told. World affairs should be accessible to all—equally accessible, if possible. We may judge something of the effect which a broadcast like the President's fireside talk might have to a world versed in the vocabulary and simple rules of Basic if we read it within the limits of that language. Here is one such version of a great speech:

THE MESSAGE OF DECEMBER 9, 1941

The sudden crime of the Japanese in their attack in the Pacific is the high point and the outcome of ten years of wrong views on International relations.

Experts in destruction, cut-throats of great power and skill, are banded together to make war upon the rest of the earth. Their glove is at our feet now. Through the back-handed tricks of the Japanese the long peace between us has been broken. Numbers of men in the American armed forces have been put to death by them. American ships have been sent down, American airplanes burned.

The Congress and the men and women of the United States take up that glove. We will see who is the better.

Together with other free men and countries we are now fighting for our right to go on living in self-respect, free from fear of attack.

I have made ready the full record of our past relations with Japan, and it will be put before Congress. The first thing on it is Commodore Perry's talks with Japan on his journey there eighty-eight years back. The last is the talk of two representatives of Japan with the Secretary of the State Department last Sunday, an hour after Japanese forces had let loose their machine guns against our flag, our forces and our Citizens.

I am very certain that no American today or a thousand years from now will have cause for any but the highest opinion of our unending attempts to keep peace in the Pacific in a way which would make it possible for all, great and small, to go on living in self-respect. And no upright person today or a thousand years from now will be able to keep down his shocked and angry feelings at the thought of the war leaders of Japan and what they did while the special servants of their State were waving the flag of peace in our faces.

Details of the Parallel

The direction which Japan has been taking for the past ten years in Asia has been parallel to the direction taken by Hitler and Mussolini in Europe and Africa. Today it has become far more than a parallel. It is all part of the same design, the balance of which is so well thought out that all the countries on earth and all the waters about them are now viewed by the Axis experts as one great field of war.

In 1931 Japan went into Manchukuo —taking it by surprise.

In 1935 Italy went into Ethiopia—taking it by surprise.

In 1935 Hitler went into Austria—taking it by surprise.

Later in 1939 Hitler went into Poland —taking it by surprise.

In 1940 Hitler went into Norway, Denmark, Holland, Belgium and Luxembourg—taking them by surprise.

In 1940 Italy made an attack on France and later Greece—taking them by surprise.

In 1941 The Axis Powers made an attack on Jugoslavia and Greece and they took over the control of the Balkans—taking them by surprise.

And now Japan has made an attack upon Malaya and Thailand—and the United States—taking us by surprise.

This picture is the same. It is all of one design.

We are now in this war. We are in it—all the way. Every man and woman, every boy and girl will have a part in the greatest undertaking of our American history. It will be necessary to keep going in the face of bad news as well as good, dark days as well as bright—the ups and downs of war.

So far, the news has all been bad. We have been seriously put back by the blow in Hawaii. Our forces in the Philippines, and with them the men and women of that Commonwealth are taking punishment, but are fighting back hard. Statements from Guam and Wake and Midway Island have not yet come through clearly, but we had better get ready for news that all three have been taken.

The list of dead and wounded in these first days will most certainly be long. My feelings go out to all families of the men in our armed forces and the relations of persons in the towns which have been attacked. I will do everything in my power to get word to them as quickly as possible.

This government has a strong belief in what the American nation will be able to undergo, and will give the facts to the public without waste of time—under two conditions: First that statements to be put out as facts have been tested by those in responsible office as true to the best of their knowledge, and second that letting out these facts when they are in our hands will not give help to the other side in any way.

Most seriously I make this request of my countrymen: put all stories of what is taking place to the test. These dark little suggestions of the worst get about on wings in war time. They have to be looked into and judged by their true value.

As an example I may say this, and say it openly, that till present conditions have been looked into more fully, I am myself without the necessary knowledge to say how much damage has been done to our ships at Pearl Harbor. It is clear that the damage is serious. But it is not possible to say how serious

till we see how much of this damage we are able to make good, and how quickly.

I give you as another example a statement made on Sunday night that a Japanese Carrier had been seen and sent down off the Canal Zone. When statements come to your ears as from "an authoritative source" (some one with full knowledge of the facts) you may be almost certain that under these war conditions the "authoritative person" was not any person with the knowledge needed to make them.

Stories of the sort we are now hearing are frequently put out by those working against us. For example, today the Japanese are saying that as a result of their one blow against Hawaii they have got control of the Pacific. This is an old trick in the Nazi war of words, which has been used times without number by them before this. The purposes of such high talk are naturally to let loose fears and doubts among us, and to make us let out military facts which the other side would be very pleased to get their hands on.

Our government will not be tricked so simply—nor will the nation. It will be necessary for every one among us to keep in mind that news which comes quickly and freely to us in time of peace will come much more slowly and in smaller amount in time of war. It is not possible to get full, quick, tested accounts of fighting from points at a distance. This is specially true of the war at sea. For in these days of new radio discoveries it is frequently unwise for those in control of different units to make use of radio for the very simple reason that this news would become public and would give away their position and what they are doing to the other side.

Testing the accounts which come in takes time; but we will not keep facts from the country if the facts are within our knowledge and if those against us will not be helped by getting at them.

To all newspapers and radio stations —all those whose words come to the eyes or ears of America—I say this: You are in a seriously responsible position in the nation, from now on till the end of this war.

If it is your feeling that our government is not giving out enough of the facts you have every right to say so. But—if you are not in a position to get at all of the facts controlled by those in office—you have no right to send out statements which you are not certain about in such a way that you give the idea that you are.

All Americans, whatever their work or interest, will have to be responsible for this. The safe-keeping of our soldiers and sailors—the very future of this nation—is dependent upon the way in which each and all of us make answer to our country's needs.

Now a word about the days we have been living through—and those to come. It is now a year and a half after the fall of France, which made clear to all the earth what machine power the Axis nations had been building for such a number of years. America has made good use of that year and a half. With knowledge that the attack might be turned on us before very long, we got started right away building up our industries and the producing power so necessary in war today.

We are some months to the good through the sending of great amounts

of war materials to nations still able to keep back the Axis machine. Our program was based on the fact that all help given to any country fighting against Hitler was in the long-run help to ourselves. The good sense of such a program is now clear. It has given us time, important time, for building up our American producing lines and machines.

Producing lines are stretching out now across the country. More are being made. The wheels are turning. A river of tanks and planes, of guns and ships and instruments of war—that is what these eighteen months have given us.

But it is all no more than a start of what has to be done. We are moving into a long war against strong and violent men who are full of underhanded tricks. Attacks like the one at Pearl Harbor may be made at a number of points in the Atlantic or the Pacific, and along one shore line or the other, in fact, anywhere in this half of the earth.

Yardstick for Our Needs

It will not only be a long war, it will be a hard war. That is the view now guiding our steps. That is the yardstick by which we are measuring our needs and our requests; money, materials, an output two and four times as great, ever increasing. The output will have to be not only for our army and our sea and air forces. It will have to go to the support of other armies and other sea and air forces fighting the Nazis and the warmakers of Japan throughout the Americas and all over the earth.

I have been working today on details of our war industry. Your government has come to two decisions about a general program.

The first is an increase of the present output by working seven days a week in every war industry, and in all industry responsible for the producing of all materials necessary to such industries.

The second, now being put quickly into effect, is the increase of our power of producing by building more new plants and additions to old plants and turning over a number of smaller plants for wartime needs.

Over the hard road of the past months we have at times come up against troubles of different sorts, against divisions and arguments, against those who are not interested or are self-interested. That is now all past—and, I am certain, has gone from our minds forever.

The fact is that the country now has an organization in Washington made up of men and women judged to be experts in their special fields. It is common knowledge that those responsible in every one of these fields are pulling together in a common cause.

On the road ahead hard work is waiting — cruel work — for every day and night, every hour and minute.

I was about to say that ahead there are losses to be faced by all of us.

But loss is not the word here. The United States does not see it as a loss for any man to do all he is able, to do his best for our nation when the nation is fighting for its existence and its future.

It is not a loss for any man, old or young, to be in the Army or the Navy of the United States. I might better say it is a special right.

It is not a loss for the head of an

industry or the worker, the farmer or the storekeeper, the trainman or the medical man to have to put up more money in taxes, to put it out for government use at fixed interest, to give up special profits, to do longer or harder work of the sort for which he is trained. It is, in fact, his special right.

It is not a loss to do without numbers of things we have got used to if the power of the nation is increased by our doing without them.

Outline of Nation's Necessary Stores

Looking over accounts this morning of what we have in hand gives me reason for saying that cutting down on the normal amount of common food will not at present be necessary. There is enough food for all of us and enough left over to send to those who are fighting with us on the other side of the Atlantic.

There will most clearly and certainly not be enough of metals of many sorts for general use for the very good reason that in our increased program, war industries will take more than half of the amount of the chief metals which for the past year has gone into goods for general use. We will have to give up a number of things completely.

I am certain that every one in the nation is ready in his day-by-day living to make the outcome of this war safe for us all.

I am certain that all will be ready to take care of a large part of the money payment for it while it is going on. I am certain that they will be ready to give up those material things they are requested to give up.

I am certain that they will keep safe their sense of values. If right and wrong become mixed for us, all that we do will come to nothing.

I say again that the United States will never be at rest till it has put to complete destruction the forces which are against us. Not only will the shame of the Japanese blow in the back have to be accounted for, but the causes of these violent wrongs against nations must be ended forever.

In my statement to the Congress yesterday I said that we will make very certain this sort of underhand behaviour will never put us in this danger again. In order to make good those words, we will have to get started on the work that is before us by putting out of our minds once and for all the idea that it will ever be possible again to keep ourselves apart from the other countries of the earth.

In these past years—and most violently, in the past few days—we have been made to see some very bitter facts.

Because of our dead to whom we are responsible, and because of their sons and daughters and ours—we will keep those facts forever in our minds.

And the facts are these: there is no such thing for any nation or for any person in any nation as keeping safe and free to make decisions, while men with no sense of right or wrong have got unlimited power.

There is no such thing as keeping completely safe against wrong-minded men out for control over others, who come on one silently in the dark, attacking without giving a sign before they do so.

It is clear to us now that our sea-ringed lands are not safe from serious attack—that distance from danger is not to be measured in miles on any map.

Part of "Dirty Business"

It is a fact, let us say it openly, that the Japanese have done a beautiful bit of underhand work, timed to the minute and effected with an expert touch. It was a deeply false act, but, the fact has to be faced that war today, as the Nazis are fighting it, is a dirty business. We have no taste for it—we had no desire to get into it—but we are in it and we are going to take up the fight with everything we've got.

In my opinion no American has any doubt that we are able to give the necessary punishment to those responsible for these crimes.

Your government has knowledge that for weeks Germany has been saying to Japan that if Japan did not make an attack on the United States Japan would have no part in the division of profits with Germany when peace came. Germany has made clear to her that if she came in she would get complete control of the Pacific for all time, and that not only takes in the Far East, and all the islands in the Pacific but, in addition, gives her a death grip on the west side of North, Central and South America.

We have knowledge that the war operations of Germany and Japan are based on a design in which the interests of these two powers are joined. In that design all persons and nations not helping the Axis powers are against the Axis powers, one and all.

That simply and clearly is the scale of their military and political operations. For that reason it is important for every American man and woman to be conscious of our need to go to work on an equal scale. To be conscious for example that clear sailing for the Japanese in the Pacific is a help to German operations in Libya; that a German push into the Caucasus gives Japan support in her operations against the Dutch East Indies; that a German attack against Algiers or Morocco is opening the way for a German attack against South America.

Points to Keep in Mind

On the other side of the picture there is the knowledge that the war of small surprise attacks kept up against the Germans in Serbia is a help to us; that a Russian push against the Germans is a help to us; and that every step forward the British take on land or sea or in any part of the earth makes us stronger. Keep this ever in mind, that Germany and Italy, apart from any public statement that they are at war with us, are in their opinion at war with the United States this minute, quite as much as they are, in their opinion, at war with Britain and Russia. And Germany puts all the other Republics of the Americas into the same group. All of us on this side of the earth may put that to our credit.

The true end we are working for is in the distance still, far on the other side of this black field of war. In our decision to make war, as now we have to do, we are going to see that this force is a force for future good as well as against the wrongs of the present. We Americans are not out for destruction in the long-run—we are builders.

We are now in the middle of a war, not for power, not for punishment, but for an earth in which this nation, and all that it is fighting for will be safe for our families and those coming after us. Our hope is to put an end to the

danger from Japan, but it would be of small use to do that if the rest of the earth were ruled by Hitler and Mussolini.

We are going to see this war through to the end, and we are going to see the peace through which comes after it.

And in the dark hours of this day—and through dark days that may be still to come—the knowledge that most men in most places are on our side may be of some comfort to us. Numbers of them are fighting for us. All of them are hoping that our hand will be made strong enough for this work. For in taking up our cause we are taking up their cause as well—our hope and their hope to be servants only of God.

LANGUAGE AND MATHEMATICS

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While pondering over the difficulty of using words in an attempt to discuss the limitations of words, I was invited by my ten-year-old daughter to oppose her in a game of "Contack." Intellectually weary from an apparently unfruitful, although extensive study of the problem defined by "words versus words," I enthusiastically accepted the invitation for in addition to the enjoyment derived from observing the intellectual activities of a youthful mind, I experienced a feeling of profound relief in turning to the medium of communication called for by this inviting game. Here was a language where the symbols used seemed to have a meaning that was clear and unambiguous. When my opponent laid claim to 15 points because "7 and 8 are 15," her meaning was clear, and when she informed me that 30 points must be subtracted from my final score because I was caught with three triangles in my possession at the close of play, her meaning was also clear. There was no ambiguity about these propositions for they were stated in a well ordered language which related to referents upon which we had agreed.

As our game continued, my opponent became greatly interested in the attractive designs made by the combined triangles and, being particularly intrigued by the satisfying symmetry of a six-sided figure, inquired if there was not "a name for a thing like that." Delighted with the opportunity to demonstrate my knowledge I proudly replied: "Yes, 'a thing like that' does have a name and just as you were named 'Helen', so a figure of that sort was named 'hexagon'."

As the design grew, other interesting figures appeared and the call for names provided additional opportunities for similar demonstrations of knowledge. Through continued experience of this kind, such words as "pentagon," "octagon," "decagon" and the like became a part of our common vocabulary. I am sure they seemed like "big words" to a ten year old mind, but I am also sure that there was no misunderstanding as to their meaning, for the referents were tangible and clear. The fact is that in using these words my daughter must have experienced a sort of satisfaction, for after some reflection, she said, "Isn't

it nice to have words like that? If we did not have words we couldn't say what we really wanted to say, could we?" This interesting question recalled the problem from which the invitation to play "Contack" had provided such a welcome release. It served to sharpen the boundaries of the problem and with purposes re-established and somewhat clarified, I returned to the task I had so willingly laid aside.

My opponent insisted that the score alone was responsible for my withdrawal and I am sure I failed in my sincere effort to convince her that what I really wanted was an opportunity to reflect on the very significant question she had raised. Words alone were unequal to that task. While those which I used for this purpose seemed to me to say clearly and effectively what I wanted them to say, it was very evident they did not carry that message to her. Something more was needed and again I was faced with the limitations of words as an effective means for the expression of ideas. Anyone who believes that the problem of saying "what we really want to say" can be solved by the use of words alone has never tried to say anything of very great importance.

My daughter does not yet realize that the gesture language of her infant days often gave a more accurate idea of "what she really wanted to say" than can be derived from the many words which she now uses with such glib fluency. She does not know that the emotional heat of the verbal barrages which frequently occur between herself and her sisters varies directly with the quantity of words used and that these words usually lead to greater misunderstandings than those already existing. She has never heard an impassioned orator declare,

> The eternal struggle between the masses and the classes has disappeared and the American People are united in a greater and more deadly struggle. They will never yield to the dictates of fascism; they will never tolerate socialism; they will defy communism; they will defend their liberties and their constitution;

but she knows as much concerning what he really said as do all those who did hear him. There may even be some doubt as to whether or not the author of that declaration knows what it means and he might be considerably embarrassed if he were asked to produce referents for such words as "masses," "classes," "fascism," "socialism" and "communism." If he had said that

> the struggle between p and q has disappeared and w will never tolerate x, y, and z,

his statement would have been just as meaningful as the original statement, although, as he well knows, its effect on the emotions would have been decidedly different.

It is possible that my daughter may be right, "If we didn't have words" perhaps we could not say all that "we really wanted to say" but there is indeed considerable doubt as to whether we achieve that desirable purpose even with the use of words. When we consider that what we really say in any given situation depends on how the words used are interpreted by the people who hear them, the problem of saying what "we really want to say" becomes vastly more complex than it originally appeared to be. Between what we think we say and what we actually do say there is too frequently a sort of intellectual "no man's land"

where receptive minds struggle in vain to discover meanings. We tend to use words as though each were uniquely defined and thus create an impression of precision which in fact does not exist. The effect of this practice is well illustrated in the educational systems of totalitarian countries where words are used to enslave the intellects of children just as effectively as the assumed logical perfection of Euclid dulled the critical faculties of his followers and made them intellectually inactive for a period of more than two thousand years.

Words are not one-valued. They are usually many valued and in any given situation the minds of speaker and hearer can meet only when they agree on the same referent. Words are the weapons which teachers use in their attack on the assumed ignorance of their students. Words provide the most commonly used means by which students communicate with others and one of the major problems facing the modern teacher is to help his students recognize the limitations as well as the power of words in effective communication.

The misconceptions and misunderstandings which inevitably accompany the use of words may account to a large extent for the relative ineffectivness of the verbal emphasis found in our system of mass education. In contrast, however, to the dangers and pitfalls that lurk in the language of the philosopher, the theologian, the lecturer, the politician, and the teacher, the language of the mathematician provides a helpful illustration of the increased intellectual power made possible through the use of well defined symbols.

More than three centuries ago Francis Bacon[1] said that if men were to save themselves from the "great sophism of all sophisms, equivocation or ambiguity of words" they must "imitate the wisdom of the mathematicians" and make clear the sense in which they use their terms. While I have no doubt there are those who might question this tribute to "the wisdom of the mathematicians," it is true that they do "make clear the sense in which they use their terms" and as a result the language of mathematics is relatively unambiguous. Here, then, is a means of communication by which it is possible to say "what we really want to say" and the factors which make that possible should receive continued and persistent emphasis. In fact, I would present the hypothesis that the language of mathematics as a medium of communication may be used as a means of improving all communication. I agree with Stuart Chase[2] that "Mathematics is a powerful corrective for the spook-making of ordinary language" and that it "might be a shield and buckler against verbal confusions."

If this desirable result is to be achieved, however, it must be recognized as one of the major purposes which give direction to the activities and procedures in the mathematics classroom, for there is nothing inherent in the content of mathematics which necessarily insures this important outcome. The study of arithmetic, algebra and geometry, regardless of the thoroughness with which the skills and techniques are brought under control, is not automatically accompanied by an

[1]Bacon, Francis. *Works.* Edited by Robertson, Book One, p. 118, 126.

[2]Chase, Stuart, *The Tyranny of Words.* New York: Harcourt, Brace and Company, 1938. p. 152, 163.

intelligent understanding of the nature and effectiveness of the symbolism used. Included in the population of our classes are all too many young people who are manipulators of empty symbols with little, if any, understanding of the ideas which these symbols represent. Recently, for example, a test in elementary algebra was given to a large body of students, all of whom had been exposed to this subject for a period of one year. One of the problems in the test called for a solution of the equation $2n=8$ and on completion of a course in elementary algebra it seems reasonable to expect that a student should be able to correctly solve this simple equation. As a matter of fact 30 per cent of the students gave such results as 10, 16, 6 and $\frac{1}{4}$. These young people were "manipulators of empty symbols." The real meaning of the statement that $2n=8$ was as unfamiliar to them as if it had been written in the Choctaw language. They saw the symbols "2" and "8" and those who felt relatively secure in connection with the so-called addition facts confidently stated that the value of n was 10. Others who were loyal to multiplication resorted to that process and, with just as much reason, others felt that all would be well if these numbers were subtracted. There is indeed no reason to believe that the entire 70 per cent who apparently solved the equation correctly really understood the meaning of this symbolic statement. Some of them undoubtedly divided for the same reason that others multiplied and it was quite by accident that they divided 8 by 2 rather than 2 by 8.

We have emphasized the operational aspects of mathematics and have neglected the significance of the very symbols with which we operate. In our concern over the necessity that children learn the so-called number facts early in their school experience we promote the memorization of a series of meaningless propositions and a few years later discuss in tragic tones the "crisis" in secondary school mathematics. Unless a child clearly understands the ideas represented by the symbols 3, 4, 7, + and =, he may intone the proposition that $3+4=7$ until a new world is born where perhaps $3+4$ does not equal 7 and from the standpoint of useful learning he might as well have been chanting that $\sigma+\beta=\gamma$. Children are not ready to learn combinations of this sort until they are familiar with the language used in stating them. The *idea* represented by the symbol "3" is of far greater importance than the name of the symbol. Let the children have an opportunity to examine a number of groups in each of which there are three items, such as three pencils, three books, three blocks, three apples, three crayons, three lines, three points, and ask what is common to each of these groups. Through such experiences the idea of "threeness" is developed and once the idea is clear it can be named and symbolized. To talk about "3" before the meaning of that symbol has been clarified is to talk about nothing.

At some stage in the development of these meanings it will be helpful to consider with the students how the same ideas were symbolized by boys and girls of earlier times. For example, the concept which we now represent by "5" was symbolized by an Egyptian boy as $\frac{III}{II}$, by a Roman lad as "V", while the Maya Indian used "———" to stand for the same idea. The symbol now

used to represent the process of addition was not revealed in a sort of Mt. Sinai experience to some mathematical Moses, although many students and perhaps a few teachers may believe this to be the case. It is the result of a long process of evolution and the idea symbolized by "+", which is now a useful part of the international language of mathematics, was represented by "plus", "piu", "p.", "P", "x" and "." at various stages in this evolutionary process.

The symbols of mathematics are the creation of the human intellect. They were invented for the purpose of expressing ideas and, as teachers of mathematics, it is well to recognize that the idea was clearly understood *before* it was symbolized. We have tended to reverse the process and have all too frequently introduced students to a symbol rather than to the idea behind the symbol. They have been encouraged to use the names of ideas which they do not possess and they have been called upon to use symbols for ideas which they do not understand.

In contrast to procedures which promote this kind of intellectual chaos I would encourage the practice which I recently observed in a demonstrative geometry class where the teacher was attempting to lead the pupils to an understanding of the nature of adjacent angles. She evidently had faith in the assumption that the definition should be the outgrowth of the work rather than the basis for it and through a series of well-planned drawings, accompanied by a number of skillful questions, she directed the attention of the students to those characteristics which distinguish adjacent angles from other kinds of angles.

The isolation of these elements gave birth to a new idea concerning the relation between two angles and once this idea was distinct and clear the teacher informed the students of the name or symbol used to represent it and thus the symbol, "adjacent angles", was introduced into their vocabulary. I later learned that these same students wanted an even briefer symbol for this idea and out of a number of suggestions offered they adopted "$\underline{A^s}$" for this purpose. I learned also that this same group had earlier invented "$\underline{V^s}$" as the symbol for "vertical angles" and there is little doubt concerning their understanding of the ideas behind these symbols as well as the origin of the symbols themselves.

Through continued experiences of this sort these young people had learned that the language of mathematics provided a medium of communication by which they could express ideas with clarity and precision. They had agreed on the meanings of the symbols used. They had established referents which all had accepted, and they had "made clear the sense in which they used their terms." Through the use of this language they were able, within reasonable limitations, to say "what they really wanted to say" and the factors which made that possible received "continued and persistent emphasis." They recognized the far-reaching importance of definition and they agreed with the statement of Ogden and Richards[4]: "The reason for using definitions at all is practical. We use them to make discussions more profitable, to bring different thinkers into open agreement or disagreement with one another."

[4]Ogden and Richards. *The Meaning of Meaning.* New York: Harcourt Brace and Company, 1936, p. 121.

Mathematics can be taught in such a manner as to emphasize these important principles of effective communication and by illustrating their application to the ordinary language of everyday life the teacher of mathematics can be of help in "improving all communication." The practice of clarifying the sense in which terms are used is just as important in ordinary life as it is in the language of mathematics, for when meanings are not clear, misunderstandings and disagreements are almost certain to arise. In one school, for example, a boy was in serious difficulty with the administration because of his tardy record and yet had read "the rules and regulations" of the school which included the statement that "unexcused tardiness will not be tolerated and habitual offenders will be required to leave school." In his defense he said, "I did not know I was an 'habitual offender' ", and on inquiry it was found that not a single student in the mathematics classes of that school knew what an "habitual offender" was. There was a sort of "no man's land" between the mind of the principal who wrote that regulation and the mind of the student who read it, for its meaning depended upon the sense in which "habitual offender" was used and this particular regulation, as well as many of the others, provided an excellent illustration of the importance of definition in the language of ordinary discourse.[5]

The constitutionality of a large number of laws which are fundamental to the philosophy of the New Deal depends upon the right of Congress to tax for the general welfare and when the Department of Justice asked the Supreme Court of the United States for a definition of "general welfare," they were asking those nine men to agree on a referent for this very important term on which depended the legality of far-reaching social legislation. The kind of thinking by which the members of the Supreme Court agreed upon a definition for "Inter-state Commerce," which led to their declaration that the N.R.A. was unconstitutional is, in essence, the same kind of thinking by which the members of a mathematics class "make clear the sense in which they use their terms" and it is through an emphasis of this kind that mathematics may become "a powerful corrective for the spook-making of ordinary language" and "a shield and buckler against verbal confusions."

One of the majestic peaks in the long history of human thought is the intellectual revolution which broke the bonds by which the absolutes of Euclid and Aristotle had enslaved the minds of men for a period of more than two thousand years. The increasing emphasis on a language which recognizes the many-valued functions of words and which clarifies the sense in which terms are used, may be a corresponding peak of even greater importance.

[5]Additional illustrations of this kind can be found in the *13th Yearbook* of the National Council of Teachers of Mathematics, Bureau of Publications, New York, p. 46-52.

THE WAYS OF A LIVING LANGUAGE

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"Prof. Charles C. Fries of the University of Michigan insisted that 'the efforts of countless generations of teachers to instruct students in grammar have been ineffective and futile.' . . . The experience of some 200 years, Dr. Fries said, shows that the Nation cannot hope by teaching to change the practices of a language, but that teachers may help students to learn what those practices are."

—*The Christian Science Monitor,*
November 23, 1940, in a news story on the meeting of the National Council of Teachers of English in Chicago.

The really sad thing about such an indictment as that of Dr. Fries is that it is too much like an externalization of the voice of conscience. His comment on the ineffectiveness and futility of our efforts is no more than we have been whispering to ourselves for years, secretly and with something like despair. What earthly use is our endless and unremitting toil? we have asked ourselves. Despite our best endeavors, our students go right on using prepositions to end their sentences with, they continue to habitually split their infinitives, they insist on using the brisk, ungrammatical colloquialism, "Who'd you go to the dance with?", instead of the more formal but correct, "With whom did you attend the dance?"

Furthermore, no one backs us up in our efforts, we continue, warming to our subject. How can we be expected to teach them to use complete sentences when every book and magazine they pick up is full of sentence fragments? Or to persuade them that "through" is not "thru" when *The Chicago Tribune* says it is? Even the dictionary-makers go back on us. For years we have been correcting our students when they said, "We were sitting around the fire reminiscing," or "He was certainly enthused about his work." "No, no," we've remonstrated, "there are no such verbs as *reminisce* and *enthuse*. If you don't believe us, look in the dictionary. The dictionary contains all the words in the English language, and *reminisce* and *enthuse* are not among them." And then in the 1936 Collegiate, Webster admitted them; *reminisce* and *enthuse* became verbs in good standing. We were hurt and puzzled, and felt vaguely that we had been betrayed. We muttered in our beards something about dictionaries succumbing to the degeneracy of the times, forgetting that language belongs to the people who speak it, and not to the makers of dictionaries, who merely record it.

But because we are conscientious, and also because we are stubborn and refuse to admit that we're licked, we go on holding the fort. We even get a martyr complex; we fancy ourselves as defenders of the pass at Thermopylae, and console ourselves with tags of verse and proverb and Scripture, like our heads being "bloody but unbowed," and "fighting to the last ditch," and "keeping the faith." And so, year after year, day in and day out, we go through the same motions, the same rigamarole, the same hocus-pocus of drills and exercises and spelling lessons and standardized tests, and for what? What is the object of this

everlasting round, what are we trying to buy with this eternal vigilance? What is the little tin god before which our academic knees crack in reverent genuflection? When you pin us right down to it, we're a little shamefaced about admitting it. Not vividness and beauty of expression, not terseness and vigorous phrasing, not a smooth, rich, varied, picturesque diction; none of these, but Correctness. That is our ideal, our god, a dead, colorless, stuffy correctness which, luckily for literature, we haven't achieved yet, and aren't likely to. As Professor Fries has pointed out, you can't hold the sea back in a net, nor stem the tide of a growing language in an English class. The best writers, from Dante and Chaucer down to Ernest Hemingway, have written the way people really talk instead of the way the grammar books say they ought to.

I suppose the fundamental difficulty is that most of us continue to regard language as revealed religion. We speak as if the laws of grammar were written, like the laws of God, eternal and changeless in the heavens. We forget that the process of evolutionary growth has gone on in language as well as in biology. And even if we do know in an academic way that language has changed in the past, that Italian is only a soft bastard Latin, that the rules of Latin grammar had to vacate when it was necessary for the Roman legionary or merchant or missionary to understand and be understood by the Gauls, that the Anglo-Saxons dropped most of their inflectional endings in order to converse intelligibly with the Danish invaders and adopted innumerable new words from their Norman conquerors—even though we know that all these things took place, still they took place in the past. Evolution is something that has happened, and we are prone to forget that it still is happening.

Much of our futile effort to maintain the status quo in usage results from our failure to realize that the very forms we are struggling to preserve are vestigial remains, like appendixes, and like appendixes are more trouble than good to us. Historically, the whole development of English has been in the direction of simplification. The English language is, grammatically speaking, infinitely simpler than most of its European cousins. Take case-endings as an example. Indo-European, the common ancestor of all present-day European tongues and many of the Asiatic ones, had eight cases of nouns and pronouns, of which Latin preserved five complete and two more in part, and of which German still preserves four. In modern English we've dropped all the case endings of nouns except the *'s* for the genitive. From eight case endings for every noun to one—that's real progress in simplification. We're not quite so progressive in the matter of pronouns, though we've reduced those to three forms apiece. But the average grammar teacher devotes his life to preventing further reduction, or trying to. The youngster who says, "Who were you with?" has a better language sense, even if an unconscious one, than his teacher; the past shows that the future is on his side.

Consider also the matter of number. Anglo-Saxon, the parent of modern English, had not only singular and plural, one and many, but dual, two. It was not sufficient to say, "I went" or "We went"; they had to distinguish between

"We two went" and "We more-than-two went." In modern English we've got rid of that complication and let the numeral adjective indicate the number involved. But what do we do to the pupil who takes another step in the direction of simplifying number by eliminating the plural, and says he's "five foot seven," or has "three mile of mud road" to get to school? Do we let him know he's working with History and Nature and the Genius of our language? More likely we slap him down and make him feel that he's transgressing a law of the universe, as inflexible as the law that two and two make four.

That there are positive suggestions to be made let no one doubt. Suppose we admit that language is bound to go on changing and we might as well not try to stop it. Does that leave us without any function at all as teachers? Dr. Fries at least doesn't think so. Experience shows, he says, that we "cannot hope by teaching to change the practices of a language," but that "teachers may help students to learn what those practices are." Which gives us a pretty wide field of activity.

Of course we can't help students learn what the practices of our language are unless we know ourselves. We need to know that writers of English have always been adventuresome and capricious spellers, from William Shakespeare, who spelled his own name nine or ten different ways, on down. It will give us a perspective on the experimental speller in the freshman class. We need to keep reminding ourselves that the most consistent practice of our language is to change. It changes every time someone gets in a hurry and shortens *telephone* to *phone*, or *omnibus* to *bus*, or *moving picture* to *movie*. It changes every time we come into contact with a new group of people and learn from them new ways and meanings: *tea* from the Chinese; *moccasin* from the American Indian, *tabu* from the Polynesian, *blitzkrieg* from the modern German. It changes every time somebody does something new or makes an invention, and a name has to be found for that which never existed before. The *railroad*, a road made of rails; *skyscraper*, a building so tall it scrapes the sky; *broadcast*, a casting abroad of sound waves. The essential poetry of our language is epitomized in these words; a good language teacher will make his students aware of it.

The language changes too every time someone perceives a likeness between two things and uses a simile or a metaphor. The customs of our ancestors are preserved in their speech habits and word patterns as fossils are preserved in the rocks. We recall that our British forbears were seamen every time we refer to a drunken man as "three sheets in the wind" or "half-seas over." Our inveterate fondness for games (and gaming) is attested by such phrases as "The die is cast," "I was bowled over," "He has a poker-face," and, today, "They've got him behind the eight-ball." The language of our pioneer grandparents is especially rich in salty expressions and pungent colloquialisms based on a strong sense of the likeness between things. They went for their comparisons to what they knew: the farm, the field, the frontier, the seasons and the weather, fishing and hunting, the Bible and religion. To them a man was as stubborn as a mule, as mad as a wet hen, as tough as whang-leather, as slow as molasses in January. He yelled like

a Comanche Indian, or shut up like a clam, or worked like a house-afire. He was as old as Methusaleh, poor as Job's turkey, proud as Lucifer, meek as Moses; he didn't know a stranger from Adam's off-ox, and anything which was undeniably true was gospel truth. If he was cross, it was because he got up on the wrong side of the bed; if something annoyed him, it rubbed his fur the wrong way; if he was gullible, he swallowed the bait, hook, line and sinker, or, a little later, let somebody sell him a gold brick. Shakespeare's Uncle Toby, drinking "until his brains turned o' the toe like a parish top," was matched by the pioneer farmer who was so mixed up he didn't know which end he was standing on. He was bald as an egg, black as a nigger's heel, solemn as an owl, or happy as the day is long. In fact, almost his every utterance was figurative and poetic. Nor has this tendency vanished today, though it may not flourish in the classroom. Outside of academic halls, people still blow off steam, occasionally they let down their hair, they talk a good deal, if they are students, about polishing the apple. But they do it on the q.t., and don't let their English teachers hear them.

There are a few Americans who realize the beauty of language which springs from the folk, just as there are a few who know the beauty of folk songs. H. L. Mencken has a good deal to say of it in *The American Language;* Carl Sandburg has collected many proverbs of the people in certain sections of *Good Morning, America* and *The People, Yes;* the scholars at the University of Chicago who are working on the twenty-volume *Dictionary of the American Language on Historical Principles* must be aware of it. But the plain garden variety of English teacher, and that would include most of us, either isn't aware of it or doesn't think enough about it.

What a beautiful and varied thing is this language of ours, clipped by the Easterner, drawled by the Westerner, softened and broadened by the Southerner, enriched by words from the six continents and the seven seas and the innumerable languages found therein, touched into life by metaphors from logging camp and slave plantation, wharf and steel mill and covered wagon, shaped by the tongues and hearts of men, sent out with their living breath into the ears and hearts of other men, politicians speaking in swelling periods, mothers singing sleep songs to the babies, farmers cussing the horses or the tractor, radio crooners, newsboys, tobacco auctioneers, and cowboys calling to the cattle as they ride around the rim of the prairie, the myriad voices of a country speaking their own language in a thousand moods and tones and inflections. These are the people to whom the language belongs, not to the dictionary makers nor the grammarians. That a handful of teachers in classrooms thick with chalk-dust should dare to "hope by teaching to change the practices" of such a language is the most pathetic folly. But that they should "help students to learn what those practices are," should teach them to value properly this strong, supple, beautiful instrument which is our language, which adapts itself so perfectly to every need of expression and is by turns strong, lyrical, matter-of-fact, coarse, limpid, precise, or tense with emotion, this is a job any English teacher might be proud to do.

NATURE-NURTURE: A HARDY PERENNIAL

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The persistent interest in the I.Q. controversy is a reflection of the significance of the topic and the far-reaching effects of intelligence testing in American education. The assumption of a *relatively* stable I.Q., determined and governed largely by hereditary forces, caused thoughtful men and women to make many special provisions for individual differences. Some of these developments were worthy and others were of dubious educative value. But all were grounded in a sincere belief in the relative constancy of "inborn" intelligence.

It cannot be emphasized too strongly that the real issue in this controversy is not as one writer so dramatically asserts "the validity or the non-validity of the startling claims made by the Iowa investigators. . . ." It is instead a question of the development and maintenance of a balanced perspective in the face of new evidence and conflicting interpretation. If experimentation of the past two decades demands alteration or even abandonment of some rather firmly established convictions, it is fitting that all school people face these issues squarely and make adjustments accordingly (as they have so often done in the past).

CHANGE IN POINT OF VIEW

To most persons, it is apparent and obvious that educational practices often reveal a regrettable lag in terms of enlightened thought and experimental evidence. The field of intelligence testing is no exception. Following the appearance of various studies of the twenties, and particularly, after the publication of the *27th Yearbook of the N.S.S.E.*, there was a seeming overemphasis upon the role of heredity in determining the intelligence of school children. To review the record is too large a task for the present. However, a cursory overview may be obtained by consulting the *27th and the 39th Yearbooks of the N.S.S.E.*[1] In the first volume, a considerable amount of experimental evidence and opinion was introduced and used by one group to validate the claim that by the "side of heredity all other factors were dwarfed in comparison." A study which was widely quoted and I believe rather generally accepted emanated from the Stanford investigators, led by L. M. Terman and Barbara Burks, who stressed the role of heredity and assigned a high percentage of influence to innate factors and a relatively low percentage to environmental forces. It is true that protests against hereditarian dogma have been numerous and continuous. In fact, in the *27th Yearbook*, F. N. Freeman presented data demonstrating a marked degree of influence traceable to environment. However, numerous educators accepted the hereditarian position. Perhaps the most generally influential statement in the bulwark of evidence for this position was that which follows:

> The maximal contribution of the best home environment to intelligence is apparently about 20 I.Q. points, or less, and almost surely lies between 10 and 30 points. Conversely, the least cultured, least stimulating kind of American home environment may depress the I.Q. as much as 20 I.Q. points. But situations as extreme as these probably occur only once or twice in a thousand times in American communities.[2]

The reader's attention is directed to the statement that changes in I.Q. as great as

Editor's note: The November, 1939, issue of *Educational Method* was entitled *Intelligence in a Changing Universe*, and was edited by Paul Witty. Many articles on the subject have appeared since that time, including one by Mr. Witty in *School and Society*, September 6, 1942. Mr. Simpson published a criticism in the same magazine, December 6, 1941. The present article is both in reply to Mr. Simpson and in an effort to bring up to date the discussion Mr. Witty introduced to readers of *Educational Method* in the 1939 issue previously named.

[1]Cf. *Nature and Nurture.* Part I, Influence on Intelligence. *27th Yearbook*, The National Society for the Study of Education. Bloomington, Illinois: Public School Publishing Company, 1928. Cf. also Intelligence: Its Nature and Nurture. *39th Yearbook.* The National Society for the Study of Education. Bloomington, Illinois: Public School Publishing Company, 1940.

[2]Burks, B. S., *Op. Cit.*, 219-316, p. 309.

twenty points occur once or twice in 1000 times in typical American communities. Other writers went even farther than Burks and assigned higher percentages to heritable factors. E. L. Thorndike, who for years has emphasized the role of heredity, found the coefficient of correlation between the intelligence test scores of siblings to be about +.60. "Comparing this value with the average sibling correlation, +.52, found by Pearson for physical traits, which are free from ordinary environmental influence, the inference is drawn that home environment acts so as to raise the correlation between siblings from +.52 to +.60."[3] These quotations from the work of two prominent investigators of the period illustrate the point of view referred to as "hereditarian." The individual cited as an hereditarian accepts these or similar views. Among the many adherents to the hereditarian view were E. L. Thorndike, L. M. Terman, R. Pintner, and L. S. Hollingworth. In a more moderate group were F. N. Freeman, W. C. Bagley, and R. S. Woodworth.

The hereditarian point of view typically was oriented in a larger framework which encompassed many aspects of educational thought and practice. For example, L. S. Hollingworth, who stated that gifted children "are those identified by mental tests as very superior to the average," revealed an extraordinary faith and optimism concerning the use of tests.

> The new knowledge thus accumulated, and the new tests invented in the twentieth century, afford us the modern approach to the study of the gifted. We can now study gifted children and learn eventually all we care to know about extraordinarily able persons, their education, and their place in civilization.[4]

And L. M. Terman stressed again and again the significance of heredity. The following is an illustration:

> Our data show that individuals of the various social classes present differences in early childhood—a fact which strongly suggests that the causal factor lies in original endowment rather than in environmental influences.

To describe this emphasis as the dominant (but not universal) point of view in educational circles during 1925-1935 is perhaps not an exaggeration. It is to be noted that in this early work, no person assigned *all* influence to heredity and no person in this group cited hereditary forces as the sole cause of high or low intelligence test scores. But the force of heredity was estimated by percentages of 75 or more. Accordingly, the I.Q. was regarded as a good, relatively stable predictive measure.[5]

Change in Attitude

During the years following the advent of intelligence testing, many students modified their positions greatly. Nancy Bayley reviews carefully this situation:

> In the early years of standardized mental tests many studies were made of the constancy of the I.Q.; the results of these studies convinced most people that the I.Q. changes little if at all during childhood. However, these early conclusions were based on rather crude statistics. Almost invariably the studies consisted of comparisons of the I.Q. of groups of children who had been tested twice, at some time during their school life.[6] These studies showed that *on the average*, the I.Q. at the second test varied five or six or seven points from the I.Q. at the first test. Since intelligence test scores cannot be perfectly accurate, this variation was laid to imperfect validity and reliability, and the theory was advanced that rates of growth in intelligence were steady and highly predictable. It was believed that an

[3] *Op. Cit.*, Prefatory note to Chapter III, by E. L. Thorndike, p. 40.

[4] Hollingworth, L. S. *Gifted Children*. New York: The Macmillan Co., 1926, p. 40.

[5] The practice followed by Terman and Burks in the *27th Yearbook* in assigning 75 to 80 per cent to heredity has not entirely disappeared. Despite the caution urged in this practice by biologists and anthropologists, one finds Raymond Cattell stating that Burks, in assigning 20 per cent of I.Q. variance to environment, "assigns too much to environment. . . ." (39th Yearbook, Part I, p. 225, Nat. Soc. Study Ed.)

[6] Neither the children's ages at testing, nor the length of the intervals between test and retest was held constant.

I.Q. could be given a child at any age for which tests were adequately standardized, and a curve of his mental growth could be projected from it, both backwards and forwards. Of course exceptions occurred—after all half of the children varied 6 or more I.Q. points on the retests, a few changing as much as 20 or 30 points. Furthermore, it was concluded that the tests for the younger ages (three to six years) were not adequately standardized, because greater variations on retests were found at these ages. Recent studies have shown, however, that the assumption of a constant I.Q. throughout the period of growth is not valid.[7]

Although rather fundamental changes in attitude did occur in many persons, there were some who modified their positions little if at all. Among those whose attitudes remained rather consistent and constant were L. M. Terman and the late L. S. Hollingworth. The position of the latter was so well-known that it was used by me as an illustration of the point of view of one group. Dr. Hollingworth's great and significant work is not to be minimized by any one; her work was cited simply for what it is: the careful postulation and consistent defense of a position.

I have held a different point of view from Dr. Hollingworth for many years, and a friendly critical argument continued between us. The reader is invited to consider the discrepancies in position set forth in many articles during the past fifteen years. There were certain changes, of course, in Dr. Hollingworth's views during this period; e.g., acceptance of Terman's early statements of the I.Q. level which delimits genius was altered as follows in the *39th Yearbook of the N.S.S.E.*:

> It has now become clear from follow-up studies that children who test at 140 I.Q. are far from genius in any accepted meaning of the term. . . . It is necessary, therefore, to revise the idea that 140 I.Q. delimits genius. From subsequent observation of the mental products of tested persons, it seems reasonable to suggest that the degree of mental ability involved in producing works of genius falls as far above 140 I.Q. as the latter falls above the generality. At and above 180 I.Q. performance begins to appear that corresponds to the lexicographer's idea of genius.[8]

These statements reflect clearly Dr. Hollingworth's unusual faith in the diagnostic and predictive values of I.Q.'s This tendency is found repeatedly in her writing. The reader is invited to examine in the *39th Yearbook* her treatment of race differences, as well as her summary statement concerning gifted children for further evidence of the steadfastness with which she clung to her earlier position. Direct comparison of Dr. Hollingworth's treatment with my own article on race differences, which follows in the *39th Yearbook,* suggests the disparity in our views.

Dr. Hollingworth has been consistent also in her treatment of socio-economic status and intelligence. After a review of selected studies of the socio-economic groups that produce the gifted, she concluded:

> All surveys have agreed in finding that a large majority of children testing at or above 140 I.Q. have been fathered by persons in classes I to III on occupational scales devised by economists; and that classes IV, V, and VI yield very few of such children. . . . However, it is necessary to emphasize the fact that a substantial and important minority of superior deviates originate in poverty, in families where all means are lacking for appropriate development.[9]

This position was reinforced by the following analysis:

> The professional group of fathers yielded 1003 per cent of their quota

[7]Bayley, Nancy. The Role of Intelligence, in *Mental Health in the Classroom, Thirteenth Yearbook,* Department of Supervisors and Directors of Instruction, National Education Association, Washington, D.C.: 1940, pp. 51-52.

[8]Hollingworth, L. S. *39th Yearbook* of the N.S.S.E., Part I, Chap. 3, p. 62.

[9]Hollingworth, L. S. *Op. Cit.*, pp. 58-59.

(number of offspring to be expected if all occupational groups were alike).

Such statements are misleading; they have sometimes been made the basis for gross misrepresentations. Gifted children, according to any definition, will often be found in average and inferior socio-economic groups because of the overwhelming frequencies of human beings in these classifications. That gifted children have not been located often in these classes by certain investigators is simply because they have been sought primarily in other groups. That gifted children are present in large numbers at *all* socio-economic levels may be readily demonstrated. For example, Stoke and Lehman estimated the numbers of gifted children in unselected populations; they then ascertained the number to be expected in different occupational categories. Census figures were consulted; and these investigators concluded that if *all* gifted children were identified, the majority would come from the ranks of the skilled, semi-skilled, and unskilled laborers—the masses. These authors conclude: "The great majority of superior children (I.Q. 140 and above) come from the non-professional classes."[10]

It is inconceivable that Simpson could be unacquainted with the history of this controversy; it is astonishing in terms of its long history that he could state: "Dr. Hollingworth was far from defending any such position as that of an absolute I.Q. constancy as Dr. Witty would lead the reader to suppose."

Serious students have never dismissed this problem in the casual way suggested by this critic. Nor have capable and sincere advocates of the hereditarian point of view followed the extreme position which Simpson implies. At this point the reader should recall that some of us who believe that I.Q.'s and intelligence in every real sense are influenced by environmental factors have never attributed all or even the major influence to environment. We have deplored the tendency to minimize or disregard the role of environment; moreover, we have insisted that drive, opportunity, and other factors must be given weight in any adequate consideration of the nature of effective intelligence.[11]

Simpson's tendency to over-simplify the work of others is perplexing. "The essential point" of Hollingworth; the "main point" of Wellman, etc., etc. Relative to the "essential point" of Hollingworth, this critic runs on: "Let it be remembered that when Dr. Hollingworth was discussing the matter of the relative stability of the I.Q. of *school* children, she specified definitely that she was dealing with ages six to maturity, not ages as young as eighteen months." Simpson then quotes a number of studies to show that the intelligence test is unreliable at preschool levels. Of course, Dr. Hollingworth dealt with children of *school* age when she was discussing the I.Q.'s "of school children." Such irrelevant digressions recur in this writer's polemics. But the most important matters are not the critic's propensity for invoking the absolutes and introducing irrelevances; they are matters of fact or misrepresentation.

Some Conclusions From Nancy Bayley's Work

I am inclined to attribute much more importance to the work of Bayley than does this critic who believes that her "main conclusion" is simply to emphasize the nonvalidity of intelligence tests given at 18 months. The following is an example of Simpson's interpretation of Bayley's work:

> To one who reads Bayley's work in toto, or even the part quoted by Dr. Witty, the main conclusion [sic] intended by Bayley and the one justified by the evidence, is that so-called "in-

[10]Stoke, S. M., and Lehman, H. C. "Intelligence-test scores of social and occupational groups." *School and Society*, 31: 1930, 377. See also (a) their "Occupational intelligence in the army: A postscript." *The American Journal of Sociology*, 36, 1930, 221-232; (b) Stoke, S. M., *Occupational Groups and Child Development*. (Harvard Educational Monographs, No. 8, Cambridge: Harvard University Press, 1927); and (c) Lehman and Stoke, "Occupational intelligence in the army." *The American Journal of Sociology*, 36: 1930, 15-27.

[11]In this connection, the reader might consult the writing of W. C. Bagley, and of Witty and Lehman. Cf. Bagley, W. C. *Determinism in Education*. Baltimore: Warwick and York, 1928 (Revised). Witty and Lehman. "Drive: A Neglected Trait in the Study of the Gifted." *Psychological Review*, 1927, 34, 264-377. "Ability versus Effective Ability.' *Psychological Review*, 1928, 35, 67-86.

telligence tests" at such an early age are so invalid or so unreliable or both that "tests of intelligence for infants and young children can not be used for the purpose of predicting later ability."

. . . it is disconcerting to find that Dr. Witty interprets Bayley's results, not as indicating the non-validity of "intelligence tests" given at 18 months of age, but rather as verifying large shifts in I.Q. Most inadvisedly he assumes that scores obtained at 18 months are just as valid and just as reliable as those obtained at any later age.

This is clearly a misrepresentation. Neither Bayley nor I have claimed anything of the sort. I can only consider that Simpson's statements are attributable to his own failure to read Bayley *in toto*, for she points out that, while there is little predictive value in scores for very young children, there are also hazards in predicting mental growth at school ages. In the *39th Yearbook*, she states:

> Changes in Stanford-Binet I.Q. points from 6 to 9 years of age also show shifting rates of growth, with larger changes over longer intervals, and with 25 per cent of the children changing 10 or more I.Q. points on retests after one year, and 17 or more I.Q. points on retests after three years.[12]

These studies of children during the *first nine years* of their lives are discussed further in *Mental Health in the Classroom:*

> Children in many cases are not constant in their rates of mental growth at all ages. In many instances the I.Q. changes markedly after an interval of several years. In the First Berkeley Growth Study, for example, only a fifth of the children maintained an approximately constant rate of growth *during the entire first nine years of their lives.* Among the others there were wide individual differences in their rates of growth. Some who started life relatively mature progressed slowly so that they gradually dropped behind the group norms. Others reversed this process, coming up from an immature status at birth to brilliant later scores. Still others had successive periods of rapid and slow growth, periods which varied in both extent and duration.[13] (Italics ours.)

If one desires further evidence of a position held by Bayley, light may be found by turning to her provocative chapter in *Mental Hygiene in Modern Education:*

> With such wide fluctuations in the course of mental development we surely cannot predict later mental development from the scores made in infancy or even as late as two years of age. However, the curves *do* become more steady as the children grow older. Each child appears gradually to settle into a rate of development which is more or less characteristic over a period of several years. *But we cannot be certain that these rates will continue to be constant throughout grade school and high school, for several recent studies have shown changes in rates of mental growth in school children.* We may illustrate this by Freeman's study made in Chicago. Freeman compared the test scores of a group of children who had been retested every year from ten through sixteen years.[14] When he divided the children, on the basis of their tests at thirteen years, into dull, average, and superior and then computed the mean scores for all ages for the three groups separately, he found that the "superior" thirteen-year-olds were so because of a spurt of rapid growth, and as they approached sixteen years their scores became more like those of the average with their rate of growth decreasing, while the growth of the duller children continued at undiminished pace through sixteen years. This continued steady growth of the children who were dull at thirteen years brought their scores up near the average. If the children had been divided on the basis of their scores at *sixteen* years many of

[12]Bayley, N. "Mental Growth in Young Children." *39th Yearbook*, N.S.S.E., Part II, pp. 29-30.

[13]Bayley, N. The Role of Intelligence. *Mental Health in the Classroom*, 13th Yearbook, Department of Supervisors and Directors of Instruction, National Education Association, Washington, D.C.: 1940, pp. 52-53.

[14]Freeman, F. N. "Individual Differences in Mental Growth," *Scientific Monthly*, XXVII, 1933, pp. 263-66.

these dull thirteen-year-olds would not have been classed as dull, and many of the precocious thirteen-year-olds would have been rated merely average.[15] (Italics ours.)

In addition to these statements, Bayley's conclusions based on case studies support her admonitions for caution in predicting mental development at *all* age levels:

> When we consider the growth curves of individual children we are often impressed with the gradual shift in test scores over a period of years. A striking case is that of Mark. Though he made the highest score of any child in the group at one month of age, he never made such a high score again, but at each successive test made a score nearer the average, until at one year of age his score had dropped to the group norm, and by the time he was two years old he was in the lowest one-fourth of the group. He remained in this relative position until he was seven years old, when his rate of growth seemed to change, and since then his scores have risen steadily, as we see in the record of his Stanford-Binet I.Q.'s. At nine years his I.Q. was 117, at ten years, 122, and at eleven years, 130. Many of the changes, of course, are not as extreme as the examples given, but they are enough to make one cautious in predicting I.Q.'s[16]

These conclusions are clearly in line with other studies which show considerable variability[17] in intelligence test scores at every level, including college. R. L. Thorndike writes: ". . . These studies have agreed in finding that those students who remain through a college course tend to gain in intelligent-test score." In addition, it has been pointed out that the intervals between test and retest influences the accuracy of prediction. Thus, Brown retested one group with intervals of two and five or more years. The correlation between initial test and first retest was +.86; between the initial and second retest, it was +.61.[18]

All these data give support to the conclusion of Bayley which is reproduced:

> The fact that rates of growth in mental abilities are variable is now well established by the studies of various investigators. In addition to the studies on [our group] there are such studies as Honzik's covering the ages 21 to 72 months; Freeman and Flory's, for ages 8 through 17 years; and Wellman's, from pre-school to college.[19].

Other examples could be selected from Simpson's article to demonstrate his seeming incapacity for accurate reproduction of studies and conclusions. The failure to represent Bayley accurately is a glaring case in point and is reproduced rather freely to demonstrate this tendency.

Pre-School Tests Permit No Generalizations

In referring to one group of Iowa investigators, I stated: "It is difficult to evaluate these reports without access to the original data." Simpson states: "He [Witty] then goes on to give his own opinions on the matter and later to quote from the Iowa studies as though their validity had not been called in question at all." In the article I *actually* followed this statement with a reference to Burk's significant evaluation of the Iowa studies; the work of Goodenough was cited; Stoddard's reply was mentioned; and several critical treatments were quoted. In fact, several studies of the change in I.Q. for preschool children and their significance were treated as follows:

> A small but statistically significant gain was reported by workers from Utah,

[15]Bayley, N. "Mental and Emotional Growth and Personality Adjustment," Chapter II of Witty, Skinner, and Others. *Mental Hygiene in Modern Education.* Farrar and Rinehart, Inc., New York: 1939, pp. 35-36.

[16]Bayley, N. "The Role of Intelligence." *Mental Health in the Classroom,* Thirteenth Yearbook, Department of Supervisors and Directors of Instruction, National Education Association, Washington, D.C.: 1940, pp. 53-54.

[17]"Considerable variability" refers merely to the fact that instead of having I.Q. changes of 20 points once or twice in 1000 cases, they occur much more frequently. For example, 25% in Bayley's retest show changes of 17 points or more.

[18]Thorndike, R. L. "Constancy of the I.Q." *Psychological Bulletin,* March, 1940, pp. 168, 170.

[19]Bayley, N., *39th Yearbook,* N.S.S.E., Part II, p. 77.

by Starkweather and Roberts, in Michigan, and by the Iowa workers. In the last named group, the initial gain seemed "genuine." On the other hand, several other studies showed no difference when control groups were employed, and in others the very small gain could not be considered significant. However, the gains, small in some instances and large in others, support a data trend in the total number of cases which no careful scientist would be inclined ordinarily to overlook. *Moreover, they suggest a field for unbiased, critical research which may prove very significant since the number and selection of cases are too inadequate to permit generalization at this time.*

Let no one assume that my recommendation in the foregoing paragraph was made without critical analysis of the data (including our own) which show the unreliability of intelligence tests for very young children. Moreover, it is manifestly unfair to treat this work as if the studies I had quoted indicated not variability at all ages but simply the "non-validity of intelligence tests given at 18 months of age." It is certainly unfair to say that I assume "that scores obtained at 18 months are just as valid and just as reliable as those obtained at any later age." And to sweep aside all the data on pre-school children is similarly unwarranted. We should seek instead by painstaking work to ascertain the causes of the unreliability of mental tests at these early ages. Some constructive work has already been done and a number of hypotheses have been offered which merit further exploration.[20]. This need for crucial research is equally apparent in the case of studies of foster children from which generalizations can not be validly drawn at present.

The Iowa Studies Again

Simpson feels impelled to set forth again at rather great length "some of the most glaring fallacies and inadequacies of the Iowa conclusions." He then points out that "the serious student of education can hardly evade the task of investigating at least sample studies of the Iowa investigators, together with a first-hand study of the critical analyses of them already available, before adopting their claim as warranted." I should go even further. I should insist that the serious student become acquainted with the splendid critical study of the growth of intelligence by Bayley, the reviews of Burks and McNemar, and the answers by Stoddard and Wellman. I should direct attention to the critical comments in *Educational Method*, and to the recent summaries on the constancy of the I.Q. and on socio-economic status and intelligence in the *Psychological Bulletin*. I should recommend an overview of the *27th* and the *39th Yearbooks of the N.S.S.E.* And finally I should bring to the attention of the student the Harvard Growth Studies.[21] Through this reading the capable student would doubtless achieve a fair perspective; he would be cautious in accepting some sweeping denunciations and generalizations even when they are made by excellent and usually careful scholars. Accordingly, he would probably conclude that Terman's regrettable show of emotion in the *39th Yearbook* is not a "masterful analysis" as Simpson reports, but is simply an unworthy display of bad feeling on the part of one of our most distinguished scholars.

Certain Uses of Tests

It will be noted that this critic exaggerates certain of my conclusions concerning the use of intelligence tests. I remarked in answer to the question: "Should prospective teachers *generally* be encouraged to give tests with a view to using them in the classroom?" that I agreed *at this point* with George Stoddard who concludes: "Mental testing as a standard procedure should be allowed to decline. Simpson interprets this statement as positing "the abandonment of the tool altogether."

[20]Cf. Thorndike, R. L., "Constancy of the I.Q." *Psychological Bulletin*. March, 1940, p. 174. The recent Harvard Growth Studies are illuminating here, as is the article by John Anderson, "The Limitations of Infant and Pre-School Tests in the Measurement of Intelligence." *Journal of Psychology*. Vol. 8, 1939, pp. 351-379.

[21]Dearborn, W. F. and Rothney, J.W.M. *Predicting the Child's Development*. Cambridge: Sci-Art Publishers, 1941.

It will be noted that my statement does not imply "the abandonment" of mental testing. Instead, I should recommend extreme caution in giving mental tests and in interpreting their results among teachers generally. And I believe that workers in the field of mental testing and child study should experiment with and devise more valid measures of intelligence. I am convinced that the task of testing children should, at the present time, be reserved for experts who have obtained a type of training which teachers generally can not and need not receive. The qualifications recommended by a committee of the *American Psychological Association* are not too much to require of these specialists.[22] If such criteria were enforced there would probably be fewer abuses of mental tests.

In the meantime, prospective teachers generally should be made fully aware of the *limitations* and the *values* of tests. It is particularly important that they understand that care must be exercised in predicting growth from a mental test score derived at any age level.

Because of these facts, perfunctory mental testing as often followed in schools *should* be permitted to decline. It should, I believe, be extended or replaced by more careful methods of child study. Already students of psychology are making notable advance in developing new approaches.[23] Observational data, developmental histories, qualitative analyses, studies of family background, appraisal of interests and activities—these and other items contribute to our understanding of the child and his probable later development. But even with such data at hand, prognoses are drawn most tentatively and are offered with extreme caution. Never is the diagnosis or the prediction the result of the administration of one mental test.[24]

It will be appropriate to scrutinize some additional "uses" of intelligence tests. A few years ago, certain psychologists held that mental tests were valuable for diagnosis, for prognosis, and for classification of pupils. Simpson apparently looks today with favor or admiration upon these functions of an intelligence test. He states that intelligence tests have long been effectively used and relied upon in classification, promotion, and guidance. To question the validity of a mental test for diagnosis or prognosis is "to fly in the face of fact." Yet, many thoughtful students do question these uses—in terms of their own experience and in light of available experimental evidence. Let us examine the question of diagnosis of mental status from a mental test. If tests are repeated a year apart, the variation in I.Q.'s will be 10 points or more for 25 per cent of the cases; if the interval is three years between retests, a variation of 17 points or more in I.Q. might be found for 25 per cent of the pupils. (Bayley.) Now it should be apparent that an assumption of a fairly constant I.Q. and hence a fair diagnosis of intelligence would be relatively unsound for 25 per cent of the group. The abuses traceable to the failure to consider the length of the interval after testing are evident in many schools. Thus, one teacher stated: "John is a dull child, but he seems very bright.' This boy was doing commendable work in school, yet his I.Q., obtained the teacher indicated, *five years earlier,* was 87. Now here we are dealing with a boy of school age who might be one of the 25 per cent whose I.Q. on retest after three years would be 104 or more. Certainly such differences make one doubt the validity of a diagnosis of mental ability from a single test. Although Nancy Bayley states that the individual test is a fair measure of *status attained* at the time the test is given, she warns that any indication of future mental status is justifiable only for a relatively short period of time. She points out another hazard to prediction: namely, growth curves are irregular for many pupils over a long period of time and continuous study of each pupil is necessary to ascertain his characteristic growth pattern.

[22]Town, C. H. Report of the Clinical Section of the American Psychological Association. *Psychological Clinic.* 23, Nos. 1-2, 1935, pp. 1-140.

[23]In the *Harvard Growth Studies,* a promising approach is suggested.

[24]Cf. The Witty-Kopel Diagnostic Child Study Record. Northwestern University, Evanston, Illinois, is one example.

To the already overwhelming evidence showing the essential variability in I.Q.'s, at all age levels, the Harvard Growth Study contributes corroborative data from the first large scale longitudinal study of growth. This study was started in the fall of 1922 when "approximately 3500 children who were entering the *first grade of three cities* of the metropolitan area of Boston were examined. In addition to 12 annually repeated physical measurements, a battery of mental and scholastic tests were administered annually to these same children for as long a time as they remained in school." p. 34. Scores of various groups and subgroups were compared on various intelligence tests given from year to year.

The following paragraph suggests the variability that may be anticipated when different tests are employed.

> An I.Q. of 100, which is commonly interpreted as indicating average ability and a position near the center of an unselected group, represents on tests given for the first time, positions varying from the 19th to the 65th percentile. The position, therefore, of an I.Q. of 100, as indicated by the results of tests used in this study, ranges from one in the lower quarter of the group, representing an ability which is supposed to approximate dullness, to one near the upper third of the distribution, indicating brightness of a promising nature. p. 134.[25]

Moreover, one may expect individual growth curves to exhibit great fluctuations. Certain cases were selected.

> In order to make a more extensive study of the fluctuations of individual mental growth curves (i.e. those who had the same estimated true mental ages at age 16) . . . These cases had varied points of origin; at age 8 there was a range of 35 points in their standard scores, (i.e., the two most extreme cases were three and one-half sigmas apart), yet at age 16 they had reached similar growth positions." pp. 179-180.

The foregoing analysis was made of children who had reached the same terminal points at sixteen years of age. A similarly large variation was found at 16 for those who started with identical mental ages at 8.

> The charts and figures presented above reveal that great variation exists among cases. According to the average curves one might judge that cases having identical mental ages at age 8 would have approximately identical mental ages at age 16, but we find that individual fluctuations have been covered up in the smooth average curve. We cannot predict with certainty that a girl at age 8 will remain superior at age 16, or that children who start out below the average at an early age may not rise above the average at maturity. p. 184.

Thus, variability at every age level is found in this very careful longitudinal study; as a result the authors affirm two basic principles: (1) Marked individual differences may be found among any age, sex, ethnic or maturity group at every period of measurement, and (2) marked *variability in individual growth curves appear throughout the course of the growth period.* (Italics ours).

> The principle of individual variability goes right to the root of such problems as the constancy of the I.Q., the use of height-weight tables, the prediction of time of maturity, prediction of age at which growth will cease and various similar problems. *We have established the fact that variability rather than consistency in growth is the rule, that prediction except for averages of groups is hazardous (and even this is hazardous at the adolescent period) and that comparison-with-average procedures have little value in the study of individuals.* p. 346.

Yes, these studies and others do strike deeply at basic problems and practices in education—the prediction of growth, classification and promotion of pupils, and many similar issues. Certainly, the fair and thoughtful student must question the propriety of a number of administrative practices associated with mental testing.

[25]Dearborn, W. F. and Rothney, J. W. M. *Predicting the Child's Development.* Cambridge: Sci-Art Publishers, 1941.

Despite the dogmatism of Simpson concerning these matters, there is a growing tendency on the part of school administrators to recognize the limitations of mental tests and other instruments and devices for establishing homogeneity and to seek more efficient and practical means of caring for individual differences. From our own experience and from critical examination of the studies in the field, we have concluded that this practice (homogeneous grouping) is usually unwarranted —at best a questionable makeshift. Moreover, there are certain philosophical and educational reasons for opposing attempts to provide homogeneous grouping in schools that serve a democratic society.[26]

A Question of Emphasis

Many administrative procedures are of course broadly and soundly conceived. My primary interest, however, does not center in these externals of the educative and learning process—worthy though they often are. Instead, my interest is directed toward the admirable work of countless men and women in humble and high places in the teaching profession who are making the classroom a place in which children are finding enriched and extended opportunities for continuous, wholesome growth. My admiration is unstinted as I observe these people and their endeavor. As I work closely year after year with different groups in American education, I observe a steady increase among supervisors and classroom teachers in their concern for the development of boys and girls as happy, competent, and well-rounded personalities. There is evidence of this tendency in many forms. One of the most notable and conspicuous of these is the published reports of teachers themselves who have recounted their experiences and adventures in the classroom.[27] This activity is not, as our critic implies, isolated from the work of educational leaders and psychologists. In this work, psychologists and educators have frequently participated directly with children and teachers in attempts to find solutions to pressing problems.[28] Thus, psychologists, educators, administrators, supervisors, and teachers are uniting in constructive work in the classroom.

It is essential at the present time, I believe, that all persons in education work cooperatively in a determined effort to make steady gains on the relatively uncharted road which lies ahead. Tolerance, mutual understanding, and humility are demanded if progress is to be made. These efforts are needed daily in our schools; and they are demanded also in scientific work. As Barbara Burks points out, there is no need for controversy; but there is "a need for a cooperative research set-up in which skill in the statistical reduction of data shall meet skill in the handling of child subjects."

[26]Cf. Walquist, J. T. "Is the I.Q. Controversy Philosophical?" *School and Society*, Nov. 30, 1940.

[27]Cf. Cole, N. *The Arts in the Classroom*, New York: The John Day Co., 1940. *Mental Health in the Classroom*, 13th Yearbook, Department of Supervisors and Directors of Instruction. N.E.A., Washington, 1941. Ferebee and Others. *They All Want to Write*. New York: Bobbs-Merrill, 1939. Appy, N., *Pupils Are People*, New York: Appleton-Century, 1941. LaBrant, L. and Heller, F. "An Evaluation of Free Reading in Grades VII-XII." Contributions to Education, Columbus: Graduate School, The Ohio State University Press, 1939. Witty, P. and Kopel, D. *Reading and the Educative Process*, Boston: Ginn and Co., 1939. Chapters IV and V.

[28]One account of our own efforts has been described by T. K. Servise in the October, 1941, issue of *Educational Method*.

NEWS FROM THE FIELD

The Department of Supervisors and Directors of Instruction, N.E.A., is sponsoring three conferences during the coming summer.

Human Development and Education

Jointly sponsored with the Commission on Teacher Education of the American Council on Education, and the University of Chicago.

Chicago, Illinois, July 27-August 7.

Leader: Daniel Prescott

For the past two years the Division on Child Development and Teacher Personnel of the Commission on Teacher Education, has been collecting, investigating, and interpreting facts concerning the growth and development of children. Participants in the two-week conference will have an opportunity to work with people who have been making these investigations. Also included in the plans are opportunities for group discussions, creative work in the art studio, visits to laboratory schools, community agencies and museums, theatre parties, sightseeing excursions, and concerts.

The fee will be $10.00 for those not desiring credit, and $20.00 for those desiring university credit for two weeks.

Conference participants will be housed in dormitories of University of Chicago.

The School and the Community

Jointly sponsored with State Teachers College.

Florence, Alabama, July 13-24.

Leader: Morris Mitchell

The world community that must result from the present revolution will find its direction through man's practical experience in experimental social organization. The TVA is up-to-the-minute democracy in action. Florence, Alabama, is at Muscle Shoals, the heart of the TVA area. Plans for the program include study-trips to communities of interest, conferences, seminars and opportunity to participate in the TVA recreational program which offers boating, fishing, hiking, cycling, swimming, and horse-back riding.

The conference fee is $10.00 Conference participants will be housed in a dormitory of the State Teachers College.

Group Planning and Problem Solving

Jointly sponsored with the University of Denver.

Estes Park, Colorado, July 6-17.

Leader: Wilhelmina Hill

High in the Rockies, at the Association Camp of the Y.M.C.A., conference participants will have two weeks of vacation in the mountains combined with opportunity to study and work with others of similar interests. The regular staff will be supplemented by various resource leaders.

The conference fee is $10.00. Conference participants will be housed in cabins of the Association camp.

If you wish to know more about these conferences, write the Department for the printed folder of information.

Ruth Cunningham
Executive Secretary

THE READER'S GUIDE

Editor, LOIS COFFEY MOSSMAN

Conrad, Lawrence H. *Teaching Creative Writing.* Published for the Progressive Education Association. New York: D. Appleton-Century Co., 1937. xii+142 pp. $1.00.

Looking back to a book for a period of four years, and these particular four, gives a reviewer an almost Jovian feeling. Much that was important four years ago has gone, and in its place has come the almost constant emphasis upon the one standard of value: a defense of democracy. Everything is weighed in terms of its near or remote relationship to the defense needs of a nation. When books must be measured by the yardstick of service to democracy, there lies a difficulty. Each time the yardstick is applied it must itself be measured anew. What does democracy mean as applied to the writing of young people? *Teaching Creative Writing* by Lawrence H. Conrad and Others has an answer, not the complete answer but a good share of one.

To the credit of the Conrad book goes the enunciation of certain democratic ideas quite widely accepted today:

> Ideas are more important than form in writing.
>
> Any piece of writing is valuable (and creative) if it serves the author's needs.
>
> Creative writing furnishes in too many instances the only school outlet the child has for his ideas and interests.
>
> Language is our one common denominator for communication. We must use it for turning day-dreaming into intelligent action.
>
> Children have need for security, understanding, and acceptance in the classroom.
>
> Writing is not a luxury for a few people with talent. Anyone can write with profit.

In the light of some of these principles, it is possible to evaluate many of the specifics of the book. Parts (sentences, phrases, paragraphs) may be as important in a child's writing growth as wholes. The oral basis for writing is vital. Meaningful reading helps to produce purposeful writing. *Teaching Creative Writing* is practical; it offers itself to all levels of teachers from elementary through college. It seeks to motivate writing in child experience. It urges that the mechanics of language be taught as needed to individuals or for short, intensive periods to whole groups. It opens the eyes of the teacher with regard to the use of writing as a means for understanding the child. "There is no need," says Mr. Conrad, "to vary the procedure in writing from grade to grade, but the areas of development must be advanced." The book stresses positive values in pupil writing and maintains, "there is no place in education on whatever level for a grading system based on absolute standards." It deplores the too garrulous teacher and urges the use of the phrase, "I don't know" when the occasion demands it. Chapter V is particularly rich in suggestions for adaptations of creative writing to many school situations.

So much that is fine might be listed to the credit of *Teaching Creative Writ-*

ing that our account would need be long, indeed, to include the strengths, and we have no such space. But accounts have their debit side.

One outstanding weakness from a democratic standpoint is the accent placed upon the teacher within the writing situation. The entire writing growth appears to depend upon a carefully nurtured pupil-teacher plan. The teacher is "first friend" to each pupil; the teacher does most of the evaluating of individual growth. Only in the last two years of high school does criticism become a class responsibility and opportunity for group growth. The teacher selects the reading material for the experimental background of the pupils.

Much of the finest writing today is produced, Belle McKenzie says, "in groups for groups" with the teacher as part of the group.[1] In a group's creative writing, growth of the individual is a shared process; awareness of one's contribution and place in the democratic social scheme comes about more quickly; the give and take of helpful but realistic criticism becomes a daily affair; ideas mature faster and come through cleaner and stronger; enthusiasm of his fellows kindles growth in a child. Certain individuals within the class will undoubtedly need the additional help of a teacher's skill as Mr. Conrad points out, but from the group activity of students and teacher together will come effortlessly some of the best children can give to writing.

Another apparent weakness referred to by Paul Witty[2] is the lack of realism in the motivation for writing. The group silently experiences a painting or a musical composition or it observes nature. Motivation for writing must be as sincere as the intended product. In the old day of motion pictures we heard actors who created emotional scenes to soft music played behind the Klieg lights. Today we have Orson Welles rolling up his sleeves and inviting everyone to experiment along with him, the best fellow he who has the most valuable idea. It is the teachers' work, in part at least, to aid in providing opportunities for realistic motivation based on knowledge of the young people with whom she deals and close to their lives and personalities. Students can aid the lone teacher many times over by their understandings of one another's needs in a class so conducted as to provide opportunity for easy interchange of thinking. Tolerance and enthusiasm are caught, not taught, by the classroom atmosphere.

The primary purpose of writing is generally agreed to be communication for understanding of oneself and one's fellows. Mere release of the pupil's imaginative or perceptive abilities is not enough for a democracy. What the student is going to use his developed abilities for is important. The main classroom job lies in sharing growth by sharing ideas and critical ability. It is the teacher's place to bring to the fore those values the class may fail to emphasize, if they are important to better class understanding and thinking.

The book lays too much stress upon the careful cushioning of the timid writer. Students who work in small groups helping one another with the teacher to develop their writing stand-

[1] "The Classroom—A Workshop for Democracy," *Pupils Are People*. New York: D. Appleton-Century Co., 1941. pp. 215-225.

[2] Idem, p. 47.

dards, usually have no need for subtle drawing out or for protection from one another's honest criticism. Enthusiasm for writing and the development of friendly give-and-take evaluation are inherent in the situation.

Unlike Mr. Conrad, I believe the teacher should not only help to find actual outlets for all student writing acceptable for print, but she should assist also in relating the child's writing experiences within the class to the rest of his life, school or home. To offer the creative writing class as a haven, the one place in school wherein a child may make use of his feelings and interests, is adding insult to injury. A happy situation in school, if properly used, can often be the leaven for adjustment of much else in the child's life.

Teaching creative writing goes a long way toward the building of democratic communication but it would seem to need reinterpretation in the light of all-out participation. I believe that interpretation can be made.

NELLIE APPY
Seattle, Washington

Lee, Irving J. *Language Habits in Human Affairs.* New York: Harper and Brothers, 1941. xxvii+278pp. $1.75.

Hayakawa, S. I. *Language in Action.* New York: Harcourt Brace, 1942. viii+243pp. Textbook edition, $1.25 (Trade edition, $2.50.)

The recent appearance of such books as Stuart Chase's *Tyranny of Words*, Hugh Walpole's *Semantics*, and now Hayakawa's *Language in Action*, and Irving Lee's *Language Habits in Human Affairs* has resulted in a growing interest in the problem of meaning in language. These books are an exposition for the layman and the educator whose special interests have not been language and philosophy of the primary scholarship of I. A. Richards, and Count Alfred Korzybski.

Count Korzybski has extended his investigation further into fields other than language than have other investigators. Since both Hayakawa and Lee have been students of Korzybski, *Language in Action*, and *Language Habits in Human Affairs* present fundamentally the same point of view derived from that of Korzybski whose own *Science and Sanity* presents many reading problems to the layman and to the uninitiated educator. In order to present this point of view in the compass of a review, it seems necessary to follow Lee's analogy in which language is compared to a map.

It is obvious that a map is not the territory that it represents, and that the map could only be evaluated by seeing if it actually represented the territory. Could one find his way in the territory using the map? Is the structure of the map the same as the structure of the territory it represents? As a map is a representation of a territory (unless it is fictitious), so language is a representation of the non-verbal world of things and events.

This representative character of language is usually ignored. Consequently it is naively assumed that the structure implicit in language is the structure of the non-verbal world. If we ask the question: Does language adequately represent the structure of the non-verbal world? we may begin to evaluate language sanely, and consequently the non-verbal world. Lee, following Korzybski,

suggests several factors which lead to false evaluation:

1. A word has many uses. The nonverbal world includes an infinity of things. These must be represented by a limited number of words. Therefore one word has many uses and it is "pointless to assume a use-value of a word apart from discourse." Adequate orientation occurs when instead of asking "What do I represent by the terms?" we ask "What does he?"
2. We never "know" all the territory. Our nervous systems are such that we respond only to some of the stimuli present at a given time. This varies with our purposes as they shift from occasion to occasion, and varies from observer to observer. Language freezes parts of experience and represents an abstraction from the situation. However, it is assumed that the language is not an abstraction but represents *all* the event. Adequate orientation requires awareness of the abstracting process involved in language.
3. The physical world is a world in process. Nothing is the same from moment to moment. Language is static and leads us to ignore the world in flux. Adequate orientation requires awareness of the "process character of nature." A device for indicating this process character when using language is the dating of statements. President Roosevelt_{1936} is not President Roosevelt_{1942}.
4. The world of nature presents a structure characterized by "multiplicity, heterogeneity, and dissimilarity." Each event is unique. Language tends to make us assume similarity of events and neglect differences. This leads to "the mechanism of identification, a process by which our responses to one situation are carried over indiscriminately to other situations which, being unique, should be evaluated differently." As the idea of similarity is derived from dissimilarity we must be conscious of both. Adequate orientation implies "consciousness of similarities in differences and differences in similarities." The suggested technique is that of indexing generic terms. Man_1 is not man_2, man_3, man_4, ... man_n.

Failure to recognize the above factors leads to an orientation to words rather than to life events. Life facts interacting with a nervous system produce speech (language) which is an event "inside the skin." Life facts should come first. Awareness of the primary importance of life facts leads to an *extensional* orientation; orientation in terms of words is intensional. As any discourse represents the "inside the skin" events of an individual it necessarily contains the evaluations of the individual. If we accept discourse without asking "What are the life facts?" we accept the evaluation of the speaker. This is the orientation desired by all who wish uncritical acceptance of their beliefs. Failure to recognize the need for extensional orientation makes us the easy victims of the Hitlers, and all "ranters for a cause." Further it makes us victims of fear, prejudice, and superstition.

This account of Lee's work represents a very inadequate abstraction. A map of a map of a map. The discussion of levels of abstraction, of the difference between descriptive and inferential language, of the "four ises" must be followed in order to gain any adequate comprehension of the central thesis of the book that the structure of language imposes a false structure upon the nonverbal world in discourse.

Hayakawa's *Language in Action*, presents substantially the same position making different emphases, and in some cases relating more familiar language terminology to the analysis. It is more conversational in style, but at times seems to adopt an unwonted humorous

attitude to the presentation of a position which is of central importance to the world$_{1942}$. Both books contain abundant illustrative material, and references for further study.

The implications for education of this position are overwhelming, since most education has consisted of intensional orientation. At the elementary and secondary levels, the reviewer doubts the advisability of teaching semantic *principles* directly. That would lead to the substitution of one set of abstractions (which are inherently more useful$_{1942}$ than the dubious abstractions now taught in language classes in the name of "grammar" and "correct" usage) for another. Application of these principles should permeate the entire curricular experience of the individual. The principles themselves should be arrived at inductively through experiences which have been established both for language teaching and for other purposes after their many applications in understanding and ordering life facts.

GEORGE SALT
Ohio State University

Korzybski, Alfred. *Science and Sanity.* Lancaster, Pennsylvania: Science Press, 1941. Second Edition. 800 pp. $6.00.

This monumental work is described by the author as an introduction to non-Aristotelian systems and general semantics. The data and their interpretations are based upon his many years of intense research both in the more traditional disciplines like logic, science, and mathematics, and in the newer fields of human knowledge like anatomy, biochemistry, and psychiatry. The volume is divided into three major parts. Book I contains a general survey of non-Aristotelian factors; Book II deals with the relationships of non-Aristotelian systems of logic and general semantics; and Book III gives supporting data for the hypothesis, drawn especially from mathematics and the modern sciences. Supplements, interpretative notes, bibliography, and index account for the last seventy-five pages.

The author believes in a number of important theses which can only be enumerated here. Words derive their meanings from the experience of people. These meanings permeate the entire structure of the individual, even the nerve and endocrine systems. These meanings are potent predispositions to behavior. They are the *sema* or signs which an individual uses in his behavior in new experiences. But these meanings are grounded in certain great systems of philosophy, logic, mathematics, ethics, and the like. These are the Aristotelian systems of fixed-position logic, the analysis-situs mathematics of Plato, the philosophical dualism between the psyche and the soma, or the soul and body, the Newtonian physics, and many others which the author describes. And these meanings derived from these older systems do not square with the modern philosophy, mathematics, science or medicine. They are all non-Aristotelian or dynamic, flexible, relative, monistic, interactive, unifying, integrating. As the author says, "the new non-Aristotelian orientations differ as much from the Aristotelian as the Aristotelian differs from the primitive types of evaluation." (xxii.)

Count Korzybski is not the first person to point out the inadequacies of the Aristotelian systems and to advocate

the new non-Aristotelian orientations. He has, however, contributed some very important additions. First, he has compiled the basic reference data; second, he shows that the conflicts between the old meanings and the demands of the new orientations prepare the ground for split personalities; third, he shows that individuals tend to reify meanings, thus becoming their slaves rather than their masters; fourth, he indicates clearly that internal reorganization of the Aristotelian system is futile, for the ideas which will remake it have all developed outside of the system.

The many semantic implications of the thesis are not so well described as the evidence upon which the thesis rests. Aiding individuals to clarify meanings by generalizing and abstracting is one of the important purposes of educators. Aiding his patients to clarify disintegrating meanings is an important purpose of the psychiatrist. But educators, psychiatrists, and others should be sure that such clarifications come within the non-Aristotelian systems if their work is to be effective. A most important implication is that the situation cannot be improved by adding to the college or secondary school curriculum a new subject called "semantics." Rather, the basic principles of dynamic relativism should be foundational to all learning, from infancy to old age.

L. Thomas Hopkins
Columbia University

Walpole, Hugh R. *Semantics: The Nature of Words and Their Meanings.* New York: W. W. Morton & Co., 1941. Pp. 264.

There are now two principal schools of thought in the semantics movement, one folowing Korzybski, the other Ogden and Richards. The sacred book of each school is too profound for ordinary comprehension, so each school has found disciples to explain its doctrines to the laity. Hayakawa and Irving Lee have explained Korzybski. Last year the report, *Language in General Education*, by Louis Zahner and a committee of the Commission on the Secondary School Curriculum, offered teachers an interpretation of Ogden and Richards. Now Hugh Walpole, not the novelist but a young Englishman who has been the personal assistant of both Ogden and Richards for many years, offers a more entertaining version of their central doctrines to the general public.

After explaining that semantics is a study of how we get meaning from language and from experience, Walpole divides meanings roughly into two classes: emotional meanings and "referential" meanings. The former reflect our feelings about events; the latter refer to the events themselves. Walpole shows how such meanings become associated with signs. If two events recur together, we think of one when we see the other. Thus, if a dark cloud is usually followed by rain, we interpret the dark cloud as a sign of rain.

Next, the same process is shown to attach meanings to words. When we were learning to talk, the word "rain" was frequently uttered when we saw it raining. We did not expect it to rain, however, whenever we heard the word "rain," for we had now learned to expect words to be used in various "contexts"—in various connections with events and with other words. It is shown that these "contexts" or connections determine the particular meaning associated with any

given utterance of a word—not the dictionary, nor the authority of the best writers, nor any mysterious efficacy of the word itself.

If this is so, how should a word be defined? We are no longer in a position to say that a word must stand for a given object, event, relationship, and so forth. Walpole proposes that we start from something the other person knows and show its connection with any given use of the word in question. He lists twenty-five common types of connections, which I find the most original and useful part of the book.

Metaphors are next discussed as the principal means by which words extend their meanings. Thus we may rain thanks on a person, or rain bombs on him—using certain similarities of these events to the dropping of rain to convey our meaning. Words which are "inventions of the mind" like youth, beauty, government, and so forth, and which are not the names of objects or of any specific sense-experiences are discussed as "fictions." They are regarded as necessary but as dangerous to clear thinking unless they can be defined in more concrete terms.

One way to avoid this danger is to practice translating passages haunted by these "fictions" into Basic English, which uses only 850 of the most common English words, and thus enforces the translation of high-order abstractions into some of the particulars on which they are based. Walpole is a master of the art of teaching Basic to English-speaking people, and his chapter on this subject is probably the best way to learn Basic quickly or to learn how to teach it. The book ends with a chapter illustrating the many sorts of questions a good reader asks himself as he reads. Each chapter ends with a summary of its chief points, written in Basic English, and with practice exercises which have a good deal of puzzle interest.

Walpole's special gift as Apostle to the Gentiles is his endless supply of good stories. He is never pretentious or condescending. He has the greatest respect for the man in the street whom he is addressing, and he does his best to make his subject clear, interesting and useful.

As I re-read the book, I am only concerned lest the central idea of this school be lost in the shuffle. That idea is that when we face any important question, we had better begin by asking what we mean by it. In facing the question "What can I believe in?" a student of Richards would characteristically begin by asking himself, "What different things do I mean by 'believe'?" He would not try to narrow his concept of belief to a single meaning, but would distinguish three or four senses of the word which are involved in his question. For example, he might decide that he meant by "belief" the acceptance of some theory of "truth" and "probability," the habitual practice of certain ways of getting meaning and the avoidance of others, attaching values to certain goals, and so forth. This is not the same as going to the dictionary and finding that belief has certain meanings: probable knowledge, conviction, faith, trust in another. Such meanings do not help us to decide what we believe in, but an analysis of what we mean by "believe" in this instance can and does help a great deal.

This seems to me a sound and useful idea, but the other ideas explained in the

book do not seem to me to add up to much. For example, emotional meanings are merely distinguished from "referential" meanings and are said to be important, but one is not helped to deal better with such meanings. The explanation of how words get meaning is incomplete. If a word recurs in connection with a given event, it will be associated in our minds with that event, but how associated? When Pavlov's dog heard the bell, he expected food, but when we hear the word "food," we do not necessarily expect food. One can infer from Walpole's explanation that the word has occurred in various connections with food (classifying, predicting, commanding, describing) and that its meaning depends on the type of connection made at any given time, but the processes involved remain mysterious, in spite of the long chapter on "contexts." There is no satisfactory explanation of how sentences get meaning, and many types of meaning are so far removed from Pavlov's dog that one can hardly explain them in terms of conditioned responses. For example, when we get the point of one of Walpole's anecdotes, what corresponds to the bell and what corresponds to the food?

This incompleteness is not Walpole's fault, for the theory which he is expounding is incomplete. I think Dr. Richards should analyze the major types of meanings which we need to get—or more exactly, the major types of meaning-operations which we need to perform. He has something like this in *The Meaning of Meaning*, but not what I want. There he discusses sixteen alternative general definitions of "meaning" and selects number 13 as the most important. Accepting this definition, one still wonders what different kinds of meanings we get from experience and from language, and how to deal better with each kind.

The long discussion of metaphor in Walpole yields only the idea that metaphor is not a decorative accessory but a way of extending the ordinary range of meanings associated with a word by the use of similarities. The discussion of "fictions" is useful, but about all one can say about them is "watch out!" and "think what you mean!" I am always afraid that readers will associate semantic precautions only with long abstract words like "extensionality" when, as Richards has pointed out, they most need to be on their guard against little words like "is," "thing," "like," "same," "real," "need," etc.

Translation into Basic English is, indeed, a useful exercise, but I find myself spending most of my time trying to find smooth Basic equivalents for concrete objects like coffins ("death-boxes" according to Walpole) which present no serious problems of meaning, while most of the words which it is important to get clear are already in Basic and require no translation. Basic is able to express so many ideas with so small a vocabulary only by the systematic exploitation of the most ambiguous words in the language. It is argued that the important senses of these words gradually become clear, but I am not convinced that they do.

Putting all these ideas together, what do we have to help us in getting meaning from language and from experience? The idea that words have many meanings, derived from conditioned responses in various contexts, and extended by meta-

phor; that some meanings are emotional, some "referential," and some have no concrete, tangible referents; that words are not the things to which they refer. These are all right, but they only scratch the surface of the problems of meaning. The relation of meanings to purposes, attitudes, and needs is not explored. The need for studying the social forces back of a given utterance is not emphasized. There is too much reliance upon isolated exercises or word-games. In searching for materials to use even as practice exercises, however, I found very few passages in which the important barriers to comprehension could be removed by the application of these ideas. They work best with authors like Donne, Coleridge, Hopkins, and T. S. Eliot (Richards' favorites) rather than with authors like Homer, Cervantes, Wordsworth, and Robert Frost, whose meanings are simpler and more amply expounded. As Mortimer Adler has pointed out, these techniques cannot be applied to whole books, but only to little snippets of books. No data are presented as to the most frequent and serious types of errors in interpretation (except in *Practical Criticism*, where the data are questionable), and there is no evidence that the study of semantics in this fashion will improve interpretation. It is assumed that serious conflicts of interest between individuals, classes, and nations may be resolved by "understanding one another better."

At least, however, Walpole stops short of pretending that his version of semantics and the use of such doodles as et ceteras, dates, and subscripts will prevent and cure neuroses and psychoses. He is, in fact, quite modest about what his school of interpretation has accomplished, and I agree that it has at least called attention to one of the central problems of education, even though it has not gone very far toward a solution. For an introduction to this problem as seen by Ogden and Richards, one has to choose either Walpole or *Language in General Education*, or possibly Richards' *Philosophy of Rhetoric*, his most lucid account of himself. Each has its merits. Walpole is the easiest, the most entertaining, and the best suited to the general public.

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Progressive Education Association—Commission on Secondary Curriculum. *Language in General Education.* A Report of the Committee on the Function of English in General Education. New York: D. Appleton-Century Co., 1940. 226 pp. $2.00.

That language is the principal vehicle of thinking and communication few would dispute. That language through its conventions and forms also conditions the very nature and quality of both thinking and communication is less obvious immediately to many people. However, thorough substantiation of the fact and of its significance for all teachers is provided in this notable publication of the Progressive Education Association.

Present throughout the book are many formulations of important linguistic principles which will aid teachers in every area of secondary school instruction to promote among their students an intelligent and constructive use of language. Although the volume is concerned primarily with the teaching of English, one of its five chapters is devoted to "The Interdependence of

Subjects." This section provides examples of language difficulties found in various classrooms and striking illustrations of the rich opportunities for the alert and linguistically informed teacher, irrespective of his "subject." Of course the English teacher is shown to have a special responsibility in helping students (and other teachers) achieve "a sound, applicable knowledge of how words work." That this should be the "central" activity in the English curriculum is a major thesis of the report.

The fundamental characteristics of "English-as-a-language" which give it flexibility, power, and beauty, and which also contribute to faulty and inadequate evaluations of verbal symbols, are set forth in satisfactory detail. One of the most important principles stressed throughout the report is the dependence of word meanings upon the verbal environment and the psychological context in which the words occur. This principle has many ramifications. For example, the multiple meanings and different *kinds* of meaning as well as the fairly constant meaning which any word may convey in various settings or contexts permit it to be used first in one sense, then in another, and so on; so-called "shifts of meaning" can take place unconsciously and through design. This quality of words is exploited frequently by the propagandist.

Similarly with the other language phenomena that are succinctly described in this book: we must constantly be aware of how words operate if we are to achieve full communication with ourselves and our fellow men. A thorough understanding of metaphor, perhaps the most important and fascinating part of language study, is shown to be essential for the achievement of power over language and of clarity in thought. Clearly demonstrated also is the need for teaching children (and adults) to dissociate symbols from the situation symbolized.

An important, though desirably not absolute, distinction is made between "referential" and "emotive" language. Another important distinction is made between "(1) the category of words that refer to physical entities, and (2) the category of words that do not refer to physical entities." Words belonging in the latter class, such as "justice," "power," and "truth," are termed "verbal fictions" or abstractions. The differentiation is valid and useful, although it should be noted that words belonging in the first class, like "chair" and "dog," have only "spurious concreteness."

It would take more space than is available for this review merely to cite the other language principles treated in the report. A substantial part of the book provides illustrative exercises, suggestive devices, and important methodological considerations for the teacher in helping children attain linguistic maturity.

Of too many professional books in education, excellent though they may be, one is justified in complaining that their counterpart may be found between other, if slightly older, covers. For *Language in General Education* there is no adequate substitute; it is a very rewarding volume for every teacher and student of education who will give it the careful reading that it requires and merits.

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